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ABSTRACT

This handbook, which is intended for workplace literacy practitioners and trainers, examines how to develop and evaluate workplace literacy. Discussed in chapter 1 are the following: current practices in workplace literacy programs, literacy demands on workers and ways of addressing them through workplace education programs, and the importance of long-term education and custom-designed instruction. Chapter 2 details the following steps in the process of planning a workplace literacy program: establishing a planning group, analyzing the need for education, locating funding sources, and gaining management and employee support. Examined in chapter 3 is the process of conducting a literacy task analysis and using the findings to design curriculum materials relevant to learners' jobs. Suggestions are provided for customizing a curriculum and supplementing it with suitable off-the-shelf materials and job aids and for recruiting learners to a workplace literacy program. In chapter 4, the process of evaluating a workplace literacy program from the perspectives of formative and summative evaluations is explained. Contains a 10-item annotated bibliography of further resources and a 36-item reference list are included. Appended are 46 overhead transparency masters that provide a broad outline summary of each chapter. (MN)

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DEVELOPING AND EVALUATING WORKPLACE LITERACY PROGRAMS: A HANDBOOK FOR PRACTITIONERS AND TRAINERS

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NCAL

Practice Guide

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DEVELOPING AND EVALUATING WORKPLACE LITERACY PROGRAMS:

A HANDBOOK FOR PRACTITIONERS AND TRAINERS

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ABSTRACT

This handbook is a general guide for starting a workplace literacy program. It outlines methods for establishing a program, from the early stages of planning through implementation to program evaluation. It discusses some of the literacy demands that workers face and how workplace education programs can address them. The key elements of planning a workplace literacy program include establishing a planning group, analyzing the need for education, locating funding sources, and gaining the support of management and employees. Developing a program involves conducting a literacy task analysis and designing relevant curriculum using materials from learners' jobs. It also involves recruiting learners to a program. Program evaluation is discussed from two perspectives. Formative evaluation examines the program while it is still under way so that changes can be made. Summative evaluation determines how effectively goals were met and looks at the impact of the program on learners and job productivity.

INTRODUCTION

This handbook is intended to serve as a general guide for starting a workplace literacy program. It outlines methods for establishing a program, from the early stages of planning through implementation to program evaluation. The definition of literacy used in this guide is a broad one, encompassing the basic skills of reading, writing, and mathematics as they relate to the use of print materials such as manuals, forms, and graphs. Excluded from the definition is the more technical workplace training involved, for example, in learning how to operate new machinery. However, such technical training may require preliminary literacy education for some workers, who may have difficulty reading the training materials or related technical manuals. Thus the scope of what a workplace literacy educator may do is somewhat vague, but its core lies in the area of basic skills.

Chapter One discusses some of the literacy demands that workers face and how workplace education programs can address them. Trends influencing programs include increased use of literacy in the workplace, the growing service sector including more temporary and part-time jobs, and an increase in the number of non-English speaking workers. Effective programs address individual learner needs through long-term education and the use of custom-designed instruction.

Chapter Two describes key elements of planning a workplace literacy program, including establishing a planning group, analyzing the need for education, locating funding sources, and gaining the support of management and employees. It is important to address the needs of the various groups within a workplace in order to encourage the development of a shared vision.

Chapter Three explains how to conduct a literacy task analysis and how to design relevant curriculum using materials from learners' jobs. This custom-designed curriculum may be supplemented with suitable off-the-shelf materials and the development of job aids. This chapter also describes methods for recruiting learners to a program.

Chapter Four discusses evaluating the program from two perspectives. Formative evaluation examines the program while it is still under way so that changes can be made. Summative evaluation uses learner assessments and other measures to determine how effectively goals were met and to look at the impact the program may have had on job productivity.

This guide includes several important features to assist you as you plan your workplace literacy program. For quick reference, summary boxes appear below each major heading in the text. These will provide a brief overview of the key points to remember. In addition, an appendix contains a set of overheads that provide a broad outline of each chapter. These are intended to serve as teaching aids so that the guide can be presented as a series of workshops for staff development. Besides providing a complete reference list, the bibliography also indicates sources for further reading on topics covered in each chapter, such as

references that describe in detail how to perform a literacy task analysis or conduct formative interviews.

It is recommended that you read the entire guidebook before developing a program or offering any courses. This is because some of the steps necessary to establish a new program will overlap with others. For example, even though some parts of the evaluation are performed after learners have completed a course, effective evaluation requires developing assessments that are administered to learners before they begin taking courses. The guidelines discussed here will assist you in all stages of program development, from establishing a planning group to evaluating the program's impact.

CHAPTER ONE

CURRENT PRACTICES IN WORKPLACE LITERACY PROGRAMS

Over the past two decades, research has identified the challenges that workplace literacy programs face. For example, we have learned that

- there are several different workplace literacy problems calling for different solutions,
- improvement takes a significant amount of learner practice time,
- transfer of learning to new applications is severely limited, and.
- significant learning loss occurs within a few weeks if skills are not practiced.

Recent trends in the labor market and in the population of workers seeking employment have also begun to influence workplace education. These trends include

- a shift in employment opportunities from relatively low-skilled jobs in manufacturing to higher skilled jobs in the service sector;
- a restructuring toward more efficient, "high-performance" workplaces which require higher skill levels of their workers;
- a general increase in the use of literacy in workplaces;
- an increase in temporary and part-time work;
- a shortfall in the level of skills workers bring to employment; and
- an increase in the number of workers with limited abilities to use English.

Workplace literacy programs operating within these constraints are characterized by

- instruction that addresses individual learners' needs and is long term;
- active involvement by major stakeholders (e.g., management, employee organizations, instructors, and the learners themselves); and

- a custom-designed curriculum that integrates basic skills instruction with workplace applications and materials.

Although effective programs incorporate these elements, few have the necessary resources to incorporate them all at the outset. Most likely, you will have to begin with one class, such as a GED (General Educational Development) program or perhaps a short job-related course that teaches some basic skills, and then expand gradually to include more customized instruction. Thus, an effective literacy program that meets the needs of all workers can be achieved gradually, over a longer period of time.

DEMANDS AND CONSTRAINTS

- Multiple program strands should address multiple problems.
- Improvement takes significant learner practice time.
- Transfer to new applications is severely limited.
- Significant learning loss occurs without regular practice.

Multiple Program Strands Should Address Multiple Problems

Because worker skills and needs vary widely, an effective workplace program should offer several sorts of instruction. These may include tutoring for very low-level literates, GED courses for those without high school diplomas, targeted skills for brush-up courses preceding technical training, and workplace-based English as a Second Language classes in workplaces with many ESL speakers.

A program with several different sorts of instruction is much more likely to succeed. Learners who experience success in one class are more likely to take additional classes. This is extremely important because most single workplace classes are too brief to have much impact. To make major skills gains, workers must continue learning and practicing for hundreds of hours as they move from class to class and strand to strand.

EXAMPLE: In one manufacturing plant, a multi-strand program was started with a skills enhancement strand where learners enrolled on a voluntary basis and received general instruction in areas where they believed they needed the most review. As the program continued, additional strands were added to address specific skills related to jobs that were performed most frequently around the plant. Later, a math skills strand was developed that supported the plant's new quality control program, contributing to overall productivity.

As you become more familiar with your organization's concerns, it is possible to incorporate new strands gradually to meet learners' demands.

Improvement Takes Significant Learner Practice Time

Training material and technical reading material in the workplace tend to range from upper high school to beginning college difficulty levels (Mikulecky, 1982; Rush, Moe & Storlie, 1986; Sticht, 1975). Though some learners with high school diplomas may only need a short brush-up course (i.e., 30–50

hours) to learn to comprehend such materials, other learners may take as much as several hundred hours of instruction.

A child in school takes 180 full days of practice, on average, to improve a grade level in reading and mathematical abilities. Adults are more efficient than this, but it still takes an average of 100–120 hours of practice and instruction for adults in adult basic education classes to make a grade level improvement. Although some individuals may improve more rapidly, the best award-winning programs still take 50–60 hours to help learners improve a grade level in general literacy skills (Mikulecky, 1989). This means that a worker who has difficulty reading simple sentences will take hundreds of hours of practice and instruction before he or she can easily read workplace memos, manuals, and safety instructions.

Since workplaces cannot afford to offer the thousands of hours of instruction provided by public schools, it is important to provide workplace instruction which multiplies practice outside of classes. This means linking instruction to materials and opportunities for practice that exist in the work and home lives of learners. Much like a diet, exercise, or health program, an effective workplace literacy program must help adults change their lifestyles to include more literacy practice.

EXAMPLE: In an insurance company, a technical manual became the basis for instruction in how to scan the table of contents to find information about various types of claims, a task that clerical personnel performed frequently. Because the classroom exercise closely paralleled an everyday job task, workers could practice and learn this skill more quickly.

Transfer to New Applications Is Severely Limited

Many people mistakenly think that any sort of literacy instruction will translate to improved learner skills on the job. College-educated adults often make this mistake because they are able to apply their own high level literacy skills to learning and meeting the demands of new jobs. They can do this because the literally thousands of hours that they have invested in literacy use has provided them with a high level of skills and excess general literacy capacity.

The same situation is not true of low and middle level literates, however. They have practiced little and have no excess capacity. In fact, for a person who has not read much and struggles with a newspaper, new workplace literacy demands may be more difficult than anything ever read before. They have no excess of general literacy capacity to support learning new technical literacy vocabulary and strategies. A couple of months of general literacy instruction at four hours a week will provide only a slight improvement in general literacy skills, and usually shows no noticeable impact on the ability to apply general literacy to technical applications.

In fact, research indicates that there is a severe limitation to how much literacy transfers from one type of task to other types of tasks (Kirsch & Jungeblut, 1986). The limitations of literacy transfer have serious implications for workplace literacy programs. This is especially true if programs attempt to use traditional, school-type materials. Sticht (1982) found that general literacy instruction only transferred minimally to job applications. He now recommends

a "functional context" approach, which teaches skills using materials that learners use on a daily basis (Sticht, 1982). If a small amount of instruction is all that is available and improved workplace practice is the goal, it is wiser to target instruction directly upon specific workplace demands.

EXAMPLE: In the insurance company just mentioned, clerical workers were able to decrease the time required to find claims information because their instruction used the same manual that they used daily on the job.

Significant Learning Loss Occurs Without Regular Practice

Lack of transfer is related to the problem of learning loss. When a person cannot transfer learning to real-world situations, opportunities to practice new skills during everyday activities on the job are lost. Sticht (1982) reports that military enlisted men improved in general literacy abilities while they were in general literacy classes, but that 80% of the gains were lost within eight weeks. However, when job-related materials were used to teach literacy abilities, learning gains were retained. This is most likely because learners could continue practicing on the job the abilities that they had mastered.

If it is to be effective in the short term, instruction should not overly emphasize general materials that have no relationship to materials workers see daily. The timing for instruction in workplace skills is also important. Preparing learners for the basic skill demands of new jobs may be wasted if they must wait several months before they are able to apply and practice their new learning.

EXAMPLE: Since the instruction for insurance clerical personnel described above was designed to correspond closely to their jobs, learners were able to gain additional practice each time they searched for claims information on the job. In addition, timing the instruction to correspond closely to the time when skills would be needed also enhanced learners' ability to recall what they had just learned. This is sometimes called just-in-time training.

In summary, when designing a literacy program, it is necessary to consider four constraints that will affect the program's success. Because workers' skills vary widely, you should design a multi-strand program that can address a variety of learner needs. Workplace literacy also requires a long-term commitment, since improvement requires a significant amount of practice time (e.g., average adult basic education programs take about 100 hours for the equivalent of one grade level gain). There is no such thing as a "quick-fix" solution to literacy skill problems. To gain improvement in job performance, literacy skills should be taught using job-related materials, not general educational materials that do not provide a clear link to the job. Finally, instruction must provide opportunities for practice in a timely manner, or else newly-acquired skills will be lost before they can be used on the job.

Educators can provide opportunities for additional practice by also emphasizing reading materials from home that are of general interest to learners. Even when those materials are not similar to those used in the workplace, benefits can still be gained when learners spend additional time reading. It may also be possible to incorporate documents from home (e.g., tables from

newspaper articles, diagrams found in home repair manuals, bills, store ads) that parallel job materials. For example, in a course that teaches the use of percentages on the job, examples of store ads advertising percentages off regular prices could be used to provide additional practice at this skill.

LABOR MARKET TRENDS

There are a number of recent trends in the labor market that have started to influence the need for workplace education and the nature of the programs provided.

- The Shift From Manufacturing to the Service Sector
- The Growth in High-Performance Workplaces
- Increased Use of Workplace Literacy
- Increase in Temporary and Part-Time Work

THE SHIFT FROM MANUFACTURING TO THE SERVICE SECTOR

- Since 1965, the United States has experienced a large shift in employment from manufacturing to service sector jobs.
- In the past, it was possible to earn more in manufacturing jobs that demanded less skill.
- Many workers find that they must now have higher literacy skills to get jobs that pay less.
- This can have serious motivational consequences for those workers, which must be addressed by workplace educators.

In the last 30 years, the United States has experienced a dramatic shift in employment from jobs in the manufacturing industries to jobs in the service sector. In 1965, 29.7% of the workforce was employed in manufacturing, but by 1993, that number had decreased to only 16.3% of workers. On the other hand, the service sector has increased from employing 63.9% of the workforce in 1965 to 79.0% in 1993 (Monthly Labor Review, 1966, 1994). In the past, it was possible for many people to earn middle-class incomes while working in manufacturing, and they were not required to have high school diplomas or advanced literacy skills to remain employed. However, the shift towards employment in services has meant that people must have higher literacy skills to get jobs that pay less (Borjas & Ramey, 1994; Gittleman, 1994; Moore & Blake, 1992).

This increase in the number of demanding jobs that pay less may have serious motivational consequences for workers. If a program is to be successful, the workers' motivation for enrolling in the program should be considered during the early stages of planning. For example, some workers may enroll to improve their chances for advancement to higher paying positions. They may also fear losing their jobs due to a perceived inability to keep up with increased skill demands, or perhaps they may be seeking new employment. Some may see it as an opportunity never offered to them before to

improve their basic skills and work life. To accomplish its goals, the program must have the support of workers by meeting their goals and needs.

EXAMPLE: In a food manufacturing plant, some production employees were enrolling in a program because a new computer system was being installed, and they feared that they might not be able to adjust to the demands of this new technology. Instruction incorporated job simulation exercises that demonstrated how to use the new computer system. Therefore, it taught basic technical skills while addressing a motivational need.

THE GROWTH IN HIGH-PERFORMANCE WORKPLACES

- Increasing numbers of businesses are adopting high performance techniques, such as quality assurance teams and greater use of technology.
- High-performance workplaces have greater demand for higher skilled workers.
- Fewer jobs are available but with more responsibility.
- Education should focus on skills that will help workers cope with those additional responsibilities.

One trend that affects both service sector and manufacturing jobs is the extent to which organizations are forming "high performance workplaces." The goal of a high performance workplace is to increase productivity by cutting bureaucracy and putting greater responsibility for quality on front-line workers. For example, in manufacturing plants that employ high performance practices, production employees may be asked to track machine efficiencies on a chart and then compute the total production efficiency for their shift, both tasks previously performed by supervisors.

Currently, approximately 35% of businesses are employing some form of high performance workplace technique, such as

- quality assurance teams,
- increased use of technology,
- statistical process control, and
- just-in-time production (i.e., producing parts as needed rather than accumulating an inventory).

These techniques often involve layoffs as work is reorganized. The skill demands made on remaining workers are increased as a result. (For examples of high performance workplace practices, see Bassi, 1992; Gordon, 1993; Osterman, 1993; Richman, 1994). In many workplaces, the employees are not able to make the necessary adjustments at first, and extensive workplace literacy education is required to improve their skills (Chisman et al., 1992). Such changes also produce considerable stress in workers as jobs are lost and greater demands are made on those remaining. Educators need to be sympathetic to these stresses and make sure that they are not seen as management agents imposing change, but rather as facilitators helping workers come to terms with

the new situation and providing constructive assistance in dealing with changed work practices.

In these situations, instruction should focus on skills that will help learners cope with their added responsibilities. It should also provide opportunities to practice the new skills so that productivity will be maintained.

EXAMPLE: A credit card company reorganized its staff of telephone operators whose job it had been to answer calls from cardholders and route them to the appropriate department so that their questions could be answered. But due to reductions in the size of each department, operators were asked to answer some questions from customers themselves. The operators required instruction in

- skim reading, in order to read a job aid that helps them decide how to handle calls;
- decision making, in order to help them decide when to answer a question or forward the call to someone else;
- communication, in order to understand the customers' problems and resolve them; and
- writing, in order to allow them to record accurately how calls are handled.

These were new skills, best learned and practiced in a job-related context.

INCREASED USE OF LITERACY IN THE WORKPLACE

- Workplaces use a combination of prose, document, and quantitative literacy.
- Different skills are often used together.
- Instruction should use realistic simulations to provide a link to the way skills are used on the job

The demands made on the skills of workers are increasing all the time. As part of teamwork, planning, and quality control, workers need to be able to solve problems that often involve the application of several skills. Literacy in the workplace requires a combination of

- prose literacy (e.g., manuals, newsletters, memos),
- document literacy (e.g., tables, forms, charts), and
- quantitative literacy (e.g., calculating, solving problems with numbers).

Also the different types of skills required—calculation, reading charts or other technical material, handling data, problem solving—are often used together to perform a workplace task.

EXAMPLE: In high-performance workplaces, teams of workers representing activities at various stages of production often meet in what are called "quality assurance teams." Teams of 4 to 6 workers are assigned the task of solving a production problem such as excess inventory. Allowing excess inventory to build up in one production area may lead to spoilage, breakage, unnecessarily high storage

costs, and other problems. To solve problems like this, they will have to:

- read inventory graphs, charts, records, or reports;
- synthesize all this information;
- brainstorm for possible solutions;
- discuss their ideas; and
- write a brief proposal to management explaining how to solve the problem.

In such a case, classroom job simulation exercises that use the context of a realistic production problem can provide the link between the various literacy skills and employees' jobs.

INCREASE IN TEMPORARY AND PART-TIME WORK

- Due to the ever-increasing costs of long-term employment commitments (such as benefits), employers are less likely to invest in permanent, full-time employees.
- Individual workers will therefore have more major job changes over their lifetimes.
- Temporary workers face higher and more varied literacy requirements, as they move from job to job.
- They will require education in flexible skills such as using resources to solve problems and answer questions on the job.

Another phenomenon with fundamental training implications is the increase in temporary, contingent, and part-time work (Bureau of Labor Statistics, 1992; Gordon, 1993; Judis, 1994). Employers in the United States are using these workers increasingly as a means of reducing fixed labor costs such as benefits and long-term employment commitments. As long-term commitments by employers decrease, more workers will have more major job changes throughout their careers. Temporary and contingent workers also face higher literacy requirements. They must be facile learners who can constantly adjust to new skill demands as their work environment changes.

Recognizing that temporary and part-time workers may frequently change job responsibilities, it might not always be practical to train them in the specifics of a particular job task and its corresponding literacy skills. Instead, you should help them develop skills that can have some transfer to other tasks.

EXAMPLE: One large company that contracted temporary employees changed its training program from one that taught employees specific computer applications to one that taught them how to locate information and solve problems. Rather than just being trained to use specific software packages, they were also trained to use manuals to find information and apply that information to answer a question or solve a problem.

Having learned to use resources to solve a problem, employees can transfer these skills and become more independent as their responsibilities change.

WORKER POPULATIONS

LOW LEVELS OF WORKER SKILLS

- The National Adult Literacy Survey (NALS) shows that one half to three fourths of workers in certain job categories perform at the lower two levels of the survey.
- Job literacy requirements are increasingly at Level 3 or above.
- Workplace instruction should focus on these more demanding job tasks, and build in practice of the necessary skills.
- Opportunities should be provided for long-term education for learners at the lowest levels if improvement is expected.

To give some idea of the actual skills of workers, consider some of the results of the recent National Adult Literacy Survey (NALS; National Center for Educational Statistics, 1993). The survey uses various realistic tasks in the three skill areas of prose literacy (e.g., identifying facts in an article or report), document literacy (e.g., finding information in a bar graph, locating points on a map), and quantitative literacy (e.g., calculating total costs of a purchase, figuring sales tax). The percentage of adults correctly completing the tasks was used to establish task difficulty ratings along a 0–500 scale. Then, each adult surveyed was given a proficiency score on the same scale according to the tasks successfully completed. For example, the task "Total a simple bank deposit entry" was rated at 191 on the quantitative scale, and adults with a proficiency score of 191 would be given that score because they had a high probability (80%) of completing that item. These people would then have a steadily decreasing probability of success with more difficult tasks that were given higher ratings of 250, 300, 350, and so forth.

In addition to the scale scores, the tasks are further divided into five levels of difficulty, ranging from the simple (i.e., tasks with a scale score of 150 are assigned to Level 1), to the complex (i.e., tasks at 500 are assigned to Level 5). Learners' proficiency scores are then used to group them into the five levels. For example, a learner who achieves a scale score of 250 on the document literacy portion of the survey is said to be at Level 2. Thus, this individual has an 80% chance of successfully completing Level 2 tasks (e.g., locating an intersection on a street map), but somewhat less chance of successfully completing higher level tasks (e.g., using a table to determine the pattern in oil exports across years, Level 4). Therefore, it is important to remember that when a group is described as being at Level 2 on the NALS, it does not mean that they are totally incapable of completing higher level tasks, only that the chance of successfully doing so is somewhat decreased.

Data from the NALS show that from one half to three fourths of workers in certain job categories (e.g., transportation, service, farming, laborer) perform at the lower Levels 1 and 2 on the prose, document, and quantitative scales. In addition, surprising numbers of high-level job holders (e.g., managers, administrators, professionals) also scored at the lower two levels of the survey (National Center for Educational Statistics, 1993). Today's high performance workplaces are increasingly requiring tasks at Levels 3, 4, and 5, which call for

solving problems, calculating, synthesizing information from several sources, and using such a synthesis to make decisions. Individuals at Levels 1 and 2 on the NALS can expect to face increasing difficulties. Although results from the NALS may appear to indicate a serious problem in the workforce, these results do not imply that workers are completely unable to perform some parts of their jobs, only that they may not be able to solve more difficult problems accurately at least 80% of the time. Also, familiarity with a situation will usually allow a worker to perform at a higher level than with an unfamiliar problem. But, in this time of changing workplaces, many workers are finding themselves dealing with new situations on a daily basis.

EXAMPLE: In a food manufacturing plant, management began to place an increased emphasis on quality control as a means to improve the plant's efficiency, but due to decreased sales, cutbacks were made in the number of supervisors. Workers were asked to take over the task of calculating the efficiency of the production line for their shift, a task formerly performed by supervisors. This involved tracking the number of hours the line actually ran, calculating with these numbers, converting the answer to a percentage, and recording it on a chart. To help workers take over this responsibility, a program was developed that used realistic scenarios and allowed for practice time. In addition, most learners used published math workbooks to brush up on their skills with percentages.

In high performance workplaces, workers are expected to perform more demanding job tasks such as the ones described in the example above. To make the most effective use of resources, literacy education should focus on the more demanding job tasks, with opportunities to practice the required skills and improve workers' chances of solving challenging problems successfully.

A test such as the Test of Applied Literacy Skills (TALS, which is derived from the NALS) or the CASAS Life Skills Assessment, can be used as a diagnostic tool to determine the actual skill levels of learners. Using one of these tests as opposed to a more general standardized test (e.g., the Test of Adult Basic Education, TABE) provides three important advantages. First, such tests use more realistic tasks that are similar to ones that workers may encounter in their jobs. In addition, the results will point out skill areas that may require extra practice. Finally, the results will help to identify learners who have less skill and may need more basic skills education before they are ready to enter job-related skills training. In this manner, low-level learners can receive long-term instruction that will enhance their skills more effectively than would a shorter, technical, or basic skills class.

WORKERS WITH LITTLE ENGLISH

- Workers with little English are over-represented in lower-skilled jobs, less likely to be provided with education from employers, and unemployed more often and have greater needs for education due to turnover.
- Such workers do not all have the same need for instruction in reading and writing, listening and speaking.
- Workers from other cultures may need help in making the shift to American workplace behaviors, attitudes, and expectations.
- Workers with little English are likely to learn more quickly if they are taught in the context of the job and outside interests.

Immigrants and their children, especially Hispanics and Asians, are projected to comprise an ever-increasing proportion of our workforce as they will our general population (Bureau of Labor Statistics, 1992). Currently, the Hispanic population is over-represented in lower skilled jobs that often do not require a high school diploma (Boisjoly & Duncan, 1994). In addition, Hispanics tend not to receive workplace education, and they tend to have less access to jobs that require some form of training to obtain (Amirault, 1992). Lack of literacy and communication skills causes Hispanics to suffer more unemployment in recessions. This, too, may suggest more need for retraining due to greater turnover (Boisjoly & Duncan, 1994).

Workers whose first language is not English are, of course, not a uniform group. Some have very little formal education in their first language, others have college degrees. Some may speak English moderately well, but have difficulty reading it, while others know very little English at all. Factors such as these will produce very different rates of English literacy acquisition and therefore vastly different requirements for instruction. For example, one ESL class may concentrate on the skills of listening and speaking to establish basic communication in the workplace, while another class teaches workers how to read safety rules and write brief memos.

For workers from other cultures, an additional factor needs to be addressed. They may bring attitudes and behaviors about work, bosses, teams, time-keeping, and other issues different from those prevailing in an American workplace. They may, for example, be accustomed to taking orders without question or come from a culture in which public criticism involves serious loss of face, and so have difficulty adjusting to a teamwork approach, which involves volunteering ideas and discussing problems and their solutions. Body language is an important component in personal interactions, and it too differs from country to country. Such cultural differences need to be brought out in the open during class, so that workers can be encouraged and assisted in making the necessary cultural shift to accommodate to American workplace behaviors, attitudes, and expectations.

To facilitate workers' ability to learn English and to do their jobs, language should be taught within the context of the job and outside interests. In addition to using published workbooks, relevant vocabulary and grammatical

constructions should be defined and discussed with the learners using realistic scenarios accompanied, whenever possible, by visual aids such as the equipment or print materials used on the job.

EXAMPLE: In a hospital, environmental services employees with little English were taught the names of safety clothing (e.g., mask, gloves, safety glasses) and when to use them. Actual equipment was brought into the classroom to use in role-play situations similar to those met on the job, so that the objects, their names, and their uses could be clearly associated. The class then discussed the importance of wearing safety clothing, to reinforce the role-play scenarios and provide further practice with the new vocabulary.

Similar techniques could be used with objects or printed materials that relate to outside interests such as hobbies, or to life skills such as paying bills and performing routine errands. It is worth noting that, for many ESL learners, workplace literacy classes may be their first exposure to written English in a learning environment.

CHARACTERISTICS OF EFFECTIVE PROGRAMS

EFFECTIVE WORKPLACE LITERACY PROGRAMS ARE CHARACTERIZED BY

- multiple strands of instruction that address learner needs and allow a succession of learning experiences for long-term education;
- the involvement of all major stakeholders, including workers, supervisors, managers, and educators; and
- custom-designed curriculum that integrates basic skills instruction with workplace applications and materials.

MULTI-STRAND PROGRAMS

- Multi-strand programs should address the needs of diverse populations on a long-term basis.
- They should also address the needs of low-level learners by providing a sequence of learning experiences from basic to more advanced instruction.
- A multi-strand program can expand from small beginnings to meet the needs of all workers.

Multi-strand programs have two major advantages over general education programs or short-term, "quick-fix" training. First, programs that have multiple strands can address the concerns of various populations such as learners whose skill levels and job requirements differ. For example, one strand may teach quality control workers to use averages as part of statistical process control, while another strand may assist workers with obtaining their GED certificate. Multi-strand programs can also be implemented gradually, allowing workers to improve their basic skills, move into higher level technical training, and eventually complete technical education courses at a community college.

A second major advantage is the assistance that multi-strand programs can provide for low-level learners. Through testing, low-level learners can be identified and encouraged to participate in general education to prepare them for major job changes or more advanced literacy classes. Thus, multiple strands can allow a program to be implemented gradually, focusing on critical issues first and then expanding to meet the needs of all workers.

EXAMPLE: A manufacturing plant's literacy program began with general education for two reasons. First, offering general education was less demanding for the instructors, since it relies primarily on published materials. More important though, this strand satisfied the workers' concern that it would provide personal benefits such as obtaining a GED certificate. Later, more strands were added that addressed both management's and workers' concerns, such as completing time cards and insurance claim forms correctly.

Involvement of Major Stakeholders

- The support of management, workers, and union members is important to the success of any workplace program.
- A good way to achieve this is to form an advisory committee made up of representatives from the key groups in the workplace.
- Involvement in the planning stages increases the likelihood that stakeholders will buy in to the program.

The support of management, workers, and union members is important to the success of your program. Creating an advisory committee made up of representatives from the key groups in the workplace is a good way to decide how a program will proceed. You will hear the views of the other partners, and the members of the committee will also hear from each other. In this situation, they are more likely to realize the need for consensus than if each group meets separately with the program planners,–or worse, is left out of the process altogether.

As an educator, you may talk first to management because of a perceived problem that is costing money. For example, the organization could be undergoing a major change such as the introduction of new technology, and employees may be having difficulty adjusting to the new skill requirements. You will need to identify specific problems and obtain information on their cost to the organization, so that instruction can be custom designed to address these concerns.

It is also important to discover workers' needs and concerns, which may be different from management's, and encourage them to buy into the program. In a union setting, find out about union goals by talking with representatives, and then involve them in program planning at the outset. If the union has educational goals involving general education and personal development (e.g., a need for GED instruction or a course on managing personal finances), strands can be implemented to meet these goals.

In a non-union setting, ask if there are appointed representatives who can discuss workers' needs. If there are no such representatives, try to meet with workers and get to know them informally, perhaps by talking to people in the employee cafeteria during break times. Then approach several people who are willing to discuss workers' needs in greater detail. You might also ask supervisors whom they would recommend that you approach. In either non-union or union workplaces, it is also possible to survey all employees about their interests, and develop one or more strands to address these.

EXAMPLE: In the manufacturing plant mentioned earlier, the program began with a general education strand that included GED preparation. This program allowed workers' individual needs to be addressed. Since participation was voluntary, starting with this strand established a reputation for being open and responsive to workers, an effective tool for recruiting additional learners. Within a short time, a second strand was added that provided instruction in job-related skills for one of the most common production jobs in the plant. Later, after these two strands were established, workers were surveyed concerning their general interests. In this survey, employees expressed an interest in learning more about their health insurance benefits, especially how to complete claim forms. A brief course on this topic was developed and several sessions were offered to accommodate different schedules. Thus, concerns of both workers and management were met in a timely manner.

CUSTOM-DESIGNED CURRICULUM

- takes learner interests into account,
- is based on an analysis of job tasks and skills, and
- uses materials from workers' jobs.

The education program that you develop will use some off-the-shelf materials for strands such as general education for low-level learners and GED preparation, but it will also incorporate custom-designed instruction. Customizing the curriculum will allow you to meet the needs of both management and workers.

Using program resources to meet the workers' interests allows them to take an early and active part in planning and developing the program. This will eliminate their concern that management is trying to "fix" a problem workforce, and instead communicate a desire to invest in people. Learners will buy into the program, increasing enrollment and retention.

Some of the custom-designed strands of the program will be based on task analysis. This involves interviewing and observing employees who are expert at their jobs to document job tasks and supporting skills. While more time-consuming than using pre-packaged educational materials, instruction that uses material from workers' jobs will provide a direct link between the skill and the job, with immediate reinforcement of skills learned, thus increasing practice time and speeding up the learning process.

EXAMPLE: In a food manufacturing plant, task analysis was used to discover the skills necessary to perform each job. Print materials were also collected and later used in class as the basis for custom-designed class activities. In the plant, task analysis of the production line jobs revealed a problem with reading manuals that contained piping diagrams. Instruction was developed that taught workers how to read and interpret these diagrams. This enabled workers to use the production manuals to solve problems rather than wasting time waiting to ask supervisors. As a result, down time was decreased and the overall efficiency of the plant increased.

CHAPTER SUMMARY

Over the past two decades, research has revealed important information that characterizes literacy education in the workplace. Organizations face multiple challenges with regard to workers' skills and the ever-increasing demands of jobs. Programs that have multiple strands (e.g., general education for low-level learners, GED preparation, job-related skills classes) are able to address these issues most effectively. Improvement requires significant practice time, often more than is available in classes. Programs have compensated for this lack of time by providing additional practice time at home and by using materials that are job-related to gain practice as learners perform their jobs. To ensure that skills will have an impact on job performance, instruction should be targeted to specific job tasks. Besides increasing practice time, using job-related materials increases learners' ability to transfer skills directly to the job, thereby increasing productivity. Since new skills are lost without regular practice, instruction should also be timed to correspond closely to when the new skills will be used on the job, or else learning may be lost.

The changing labor market also plays a significant role in the nature of workplace literacy programs. Labor market trends such as the shift to more service sector jobs, high performance workplaces, increased use of literacy, and increasing temporary and part-time work all influence the need for workplace education. Instructors and program developers should strive to make programs relevant to workers' needs such as the need for flexible skills that will apply to a variety of jobs, and the need for increased skill in high-performance workplaces that use techniques such as increased quality control. Programs should also address such concerns as low levels of worker skills and immigrants with little English. Long-term programs that begin with basic reading, document, and quantitative skills, and advance to job-related skills education and beyond will help learners improve productivity and address personal needs such as improving chances for advancement.

As programs are planned and implemented, educators should concern themselves with three important workplace education needs. These are involving stakeholders in the early stages of planning, developing programs with multiple strands to address multiple needs, and custom-designing the curriculum to suit particular jobs and skill areas. Details about planning and analyzing the needs of the workplace will be discussed in Chapter Two.

CHAPTER TWO

PLANNING A WORKPLACE LITERACY PROGRAM

This chapter provides guidance on the following topics:

- analyzing the need for literacy education,
- addressing the needs of various groups within a workplace,
- using non-training solutions to increase instructional effectiveness,
- locating sources of funding and resources,
- planning the logistics of a program, and
- developing a shared vision.

EFFECTIVE WORKPLACE LITERACY PROGRAMS

A growing body of research has identified certain characteristics associated with effective workplace literacy programs. Relatively few workplace programs meet all these criteria, but the degree to which they can be met appears directly related to their success:

- Multi-strand programs are an effective way to meet the demands of the diverse populations within a workplace.
- Custom-designed materials integrate basic skills instruction with workplace instruction.
- Forming an advisory committee involves major stakeholders in the planning process.
- Planning for long-term educational goals allows workers—and the program—to grow.

It is important to realize that we face several literacy issues in the workplace and not just one. Therefore, no single class or course can meet the demands of the diverse populations within a workplace. By using a multi-strand approach with several different types of courses and strings of educational experiences, you can meet more needs and build on previous learning experiences. The aim of the program, which needs to be agreed on by all stakeholders, should be to address long-term educational goals while satisfying short-term needs.

EXAMPLE: At an auto manufacturing plant, short courses on safety procedures for new equipment were offered to learners. After completing these courses, learners were able to select from additional educational experiences such as GED or technical courses.

Another characteristic of effective programs is using custom-designed materials that integrate basic skills instruction with workplace applications.

When a person cannot transfer learning to real-world situations, he or she cannot continue to practice what has been learned. Custom-designed materials link instruction directly to workplace demands and allow the learner to build on previous knowledge.

Having an advisory committee play an active and consistent role in developing and monitoring the program is important to its long-term effectiveness. The committee can introduce you to the workforce, provide valuable information and insight about the workplace, determine what resources are available, assist you in deciding which groups of workers to target first, and help gather information and recruit students. Depending on the organization, your advisory committee might include employees, administrators, representatives from unions or other partner organizations, departmental supervisors, and members of the company training department.

Since few programs can initially meet all these criteria, try to emphasize first what you can accommodate in your own program. You might have to start small, but it is important to build a vision for your program's future. Ask employees to suggest future courses that they would be interesting in taking. Also, be aware of current and future educational needs that are not being addressed. By building on employees' interests and the future needs of the company, you will develop a stronger program.

EXAMPLE: At the auto manufacturing plant mentioned earlier, the literacy program began with short courses on safety procedures. Instructors learned from the workers attending these classes about other needs and interests—such as a GED class, which was started soon after. The plant was also setting up work teams, requiring better communication skills, and introducing statistical process control. To meet this new need, both management and union wanted classes on writing memos and meeting minutes, and on basic math leading toward calculating averages and plotting graphs. Thus, over a period of a few years, the program grew from its initial one course to a true multi-strand program, satisfying the needs of that workplace.

PLANNING AHEAD

In determining the specifics of your program, the following activities will help you to plan ahead. You should first analyze the needs and wants of both the company and the employees. Find out where the problems are—are there communication problems between management and employees, are there skills that workers need to improve? After you have found out where needs are, you then determine whether a literacy program will help meet those needs. If such education will help, then you have to decide what types of courses will be offered and to whom they will be offered. Also analyze what types of non-training solutions will be important to the success of your program.

Finding money for workplace literacy programs can be a challenge. Even when the company or union funds them, it is important to look for other sources of money. You can also look for opportunities to share resources with other company departments or other organizations. By planning ahead, you can build a more effective and successful workplace literacy program.

ANALYZING THE NEED FOR EDUCATION

- *"Where is the pain?"*—what problems are causing real concern for the employees and company.
- Gather information through interviews and surveys, and by observing daily operations in the workplace.
- Determine which areas of company performance need improvement: find out the differences between where the company and the workers are and where they want or need to be.
- Define which problems are most pressing and determine whether they can be solved through education.

Before planning a program, you should analyze the workplace situation in general. Find out the differences between where the company and the workers are and where they want or need to be. What are the needs and wants of the employees, the company, and the union? What do the stakeholders expect your program to achieve? For example, some employees may want to raise their general educational level in order to obtain a GED certificate. The company may want all workers to be able to carry out statistical process control procedures. Or a union may want to increase their members' knowledge about health benefits.

You can find out this information by conducting a needs analysis. A needs analysis can take many different forms and can vary in depth and comprehensiveness. The type of needs analysis you do is often dictated by the amount of time and money you have available. A needs analysis is done by arranging focus groups, interviewing people one on one, asking people to complete surveys, and observing daily operations in the workplace.

Suppose the company wants to raise the job skills of the workforce. By interviewing a broad range of employees, managers, and supervisors, you can find whether performance problems exist and what they are. By asking "Where is the pain?"—what problems are causing real concern for the employees and company—you can then assess whether a literacy program will help solve the problems.

These are all things you should consider when doing a needs analysis.

- Are there problems with manuals not matching manufacturing procedures?
- Do employees need extra assistance with completing paperwork?
- Are there accidents caused by the inability to read directions?
- Is management not communicating effectively with employees?
- Do employees have appropriate workspaces?
- Is there a lack of motivation or incentive among employees?

After determining what the needs are, you must then define which problems are most pressing and decide whether they can be solved through education. An

advisory committee can help guide this process by helping you become familiar with both employees and the company.

When doing a needs analysis, you should get all stakeholders involved in the process from the beginning. They can provide valuable information about the workplace and its needs. They can also help with analyzing problems and recommending solutions for them. It is important to analyze the job tasks in the workplace. During interviews and observations, you document the tasks involved in doing a particular job. At the same time, you collect samples of printed materials and discuss them with employees and supervisors. These materials will later form the basis of your custom-designed curriculum. (See Chapter 3 for more information on this topic.)

Conducting a needs analysis is an important part of planning a program. As a program planner, you should make sure that you are providing a service that is needed. Sometimes there are other problems such as conflicts between management and workers, an error in the manufacturing process, or an ineffective organizational structure. A literacy program will not help solve these problems. So you should not assume that low literacy levels are causing problems, even when management tells you so. You need to investigate the situation thoroughly before planning any program or course.

EXAMPLE: At one small manufacturing company, a literacy instructor was hired to work with the maintenance staff. The company's management thought the employees were having literacy-related problems since they were not completing a certain form properly. The company had recently changed its policy, and employees now had to complete a form to request certain machine parts. But after testing these employees, the instructor found out that the problems were not literacy related. The employees were in fact unhappy with the management's lack of communication about a new policy and they were deliberately not completing the forms correctly. However, those workers did later report other sorts of literacy areas in which they did want help.

When making recommendations for changes, be aware that you may have to deal with corporate politics. Companies are not often responsive to outsiders coming in and making suggestions for improvement. From the beginning, you need to make it clear that you are doing this to determine their literacy needs. You may also be helping the company by preventing unnecessary training programs. You should periodically re-evaluate the need for future educational programs.

DESIGNING THE PROGRAM

- Address the needs of both the employees and the company.
- Create a balance of workplace demands and learner interests.
- Offer multi-strand programs to meet the needs of various workplace groups.
- Involve workers in developing and recruiting for your program.

Designing a customized program that integrates workplace demands with other types of educational skills will help better meet the needs of both the employees and the employer. Custom-designed programs can help cut hidden costs associated with low-level literacy within a company. Reworking, retraining, and accidents can be very costly. The money saved can often more than pay for a literacy program. Also, if you present the specific needs and how they will be solved, more people in the company will be able to see the relevance of instruction that is directed at real problems.

It is important to balance the program by addressing the employee's outside needs and interests as well as workplace needs. Combining job skills instruction with life skill materials such as medical information or appliance repair makes the instruction more relevant and more effective. For example, if your program has a course designed to teach employees to use workplace charts and graphs, you could also provide instruction in using charts and graphs for items used at home such as nutritional information charts. This will maximize the effectiveness of your program by allowing learners to extend and practice their skills. It is important to find out what specific types of education employees are interested in and integrate that education into your program. By offering classes that address employees' goals and interests, you will directly address their personal needs and encourage them to apply their new skills in other areas. Gaining employees' buy-in for your program will be important to its future success. They will help you recruit other students and make it a more effective program.

Increasingly, programs in business and industry are becoming multi-strand programs. In such programs, one instructional strand might address the needs of English as Second Language learners, another strand might help learners prepare for GED certificates, and additional strands might help high school graduates brush up on skills before preparing for technical training. The instructional format may vary from structured classes to small group instruction, to computer-guided instruction, to individual tutoring. Some learners will, over several years, move from one strand to others.

EXAMPLE: In a multi-strand program for correctional officers at a women's prison facility, instruction was delivered in three strands. The first strand was designed to help officers improve their report writing skills, so that reports on offenders could become more

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effective at disciplinary hearings. The second strand focused on promotions support and addressed the employee population interested in preparing for job advancement. This course helped learners prepare for advancement as well as upgrade their skills for other post-secondary instruction. A third strand addressed family literacy skills and taught parents how to read and share books with their children. This encouraged learners to maintain and extend their own literacy gains while helping their children develop skills at home.

Employees are not passive receivers of instruction—they are partners. They can become a valuable resource for helping you plan, develop, and evaluate a program. They can tell you how things are really done at the company, where the problems are occurring, what types of education are needed, and what courses would be valuable to them as individuals. They are also a valuable resource for publicizing and recruiting, as well as for evaluating a course or program.

EXAMPLE: In a literacy program at a manufacturing company, employees helped gather data to plan courses, helped develop the curriculum, helped delivered the instruction, and evaluated the program. Employees contributed knowledge based on their job responsibilities and expertise. Course participants were especially helpful in specifying which areas of instruction were not related to the actual jobs or which job practices did not follow company instructions. They also suggested course revisions through interviews and surveys. Their assistance not only helped improve their own instruction, it also helped improve the design of future courses. Since they were involved in course development, they bought into the program and helped recruit other students.

Teachers and educational coordinators developing workplace literacy programs must confront many issues. However, if you listen carefully, you will hear both employees and management saying what problems and desires are most pressing or persistent. This will help you determine what types of classes to offer. Your goal is to create courses that address the actual needs and goals of the employee and employer.

Addressing the Needs and Goals of Various Groups

- Multiple program strands are needed to address multiple problems.
- Improvement takes significant learner practice time, and varies greatly depending on the learners and the material.

When designing a program, it is important to realize that we face several literacy problems in the workplace, not just one. The person who cannot read at all requires a different type of support from than the high school graduate who is unable to meet the new reading demands of his job. People educated in a foreign language and not speaking much English require another type of support. Providing the same services and programs to such different clients makes no sense, and yet it sometimes occurs. (A program just starting out,

however, may have limited resources and a low enrollment, and therefore be obliged to teach mixed groups. In such classes, the teacher must find ways of catering to all needs, and could include individual work and large and small group activities as appropriate.)

You will find that there are no magic pills in terms of improving literacy skills, and the time needed to make considerable improvement varies greatly. Factors like the literacy levels of students entering a program, the complexity of material being taught, and the speed at which students are able to learn all affect the amount of time needed for various groups. We will now consider several groups in the workforce and their possible goals and needs.

HIGH SCHOOL GRADUATES

Often high school graduates who have been out of school for several years may need a refresher before receiving further training. Some may need to brush up on their reading or math skills due to new demands on the job. These needs should be taken into consideration when designing a program. Short, targeted courses may be the best answer.

HIGH SCHOOL NON GRADUATES

People who did not graduate from high school may be interested in obtaining their General Educational Development (GED) certificate. These people often need to brush up on basic education skills before doing this. Some may also be interested in furthering their education beyond high school. Providing information about two-year degrees and other educational opportunities should be part of instruction.

PART-TIME EMPLOYEES

Part-time employees often have specific educational needs but may not be included in company-sponsored training. Many part-time employees are former full-time employees who have been affected by downsizing or a shrinking job market. So it is important to address the specific job-related needs of part-time employees, and if relevant, provide training in job search strategies. Linkage to community-supported programs can also be included.

VERY LOW LEVEL LITERATES

One of the common myths about workplace literacy programs is that all the students are functioning at very low levels. This is not the case—less than 3% of adults read at or below a second-grade level. However, if testing reveals a significant number of adult very low-level literates in your workplace, you will need to decide if you can help them or need to refer them to other programs. For this group to improve to the point of being able to read a manual or a newspaper, it takes several hundred hours of practice and often one-on-one tutoring. For some severely learning disabled adults, comprehending high school level training material may simply be out of reach. Working with local literacy providers or setting up a peer tutoring service in the workplace can provide an opportunity for you to find out who in this group can be helped by you. If you are considering a peer tutoring system, you need to check whether there will be any problem with learner confidentiality or possible social stigma for those in need of help.

Others in the workplace may be middle-level literates who have only recently encountered demands beyond their abilities. Some adults can work their way through simple sentences but are not prepared to handle extended written instruction, manuals, or new training material. This group can make fairly rapid gains in a hundred hours or so if instruction is focused and effective. It is important to use job materials so learners can practice their skills and knowledge daily at work. Linking to home interests can further extend practice.

To help these people, look at what the students really "need to know" for the job and "want to know" for home use. Teaching material that is "nice to know" adds class time and frustration. Be flexible and creative in the range of methods that your teachers use. Provide these students with materials that they can keep so that they can refer back to instruction and notes. It is also very helpful to plan a definite scope and sequence to all instruction, and create many short-term visible goals.

ENGLISH AS A SECOND LANGUAGE

Increasingly, many of the people entering the workplace are not native speakers of English. They can often make rapid gains if their educational needs are met directly. Most of the suggestions made for low-level literates are applicable to ESL learners. In addition, you should determine specifically what the actual language needs are. Find out the areas of oral or print communication that call for the most immediate help. You can design many customized materials for ESL learners, such as how to complete a job application, how to read safety instructions, and how to use the telephone. Using role playing for specific situations such as how to start a conversation in English is also helpful. Role play and discussion of cultural differences between the members of the class and American society can help ease tensions by bringing such issues out in the open. Group activities calling for simple oral language use pay dividends in later literacy development.

In addition, you can provide these students with simple texts and workbooks, so they have something to take home for further practice. You should encourage them to share their knowledge with their families. When working with ESL learners, be aware that some of the students may not have had a great deal of education in their first language. This often makes it more difficult to learn a second language. Others, however, may have had a high level of education in their first language. Find out all you can and try not to make assumptions based on English mastery alone.

OTHER LEARNER NEEDS

Sometimes your program does not currently have the resources to address all the students' needs. Learners might need something other than what your program offers. When working with various groups of students, be aware of other resources in your area. Have information on local colleges, technical schools, and GED programs. It also helps to have knowledge of resources such as social services, child care, care for aged, and other programs that might be needed to free employees to attend class.

DESIGNING NON-TRAINING SOLUTIONS

- Non-training solutions include providing job aids, redesigning forms, and rewriting instructions.
- But be careful—employers will not always be open to these types of changes.

While analyzing the needs of a workplace, you should determine if there are non-training solutions that would help increase the effectiveness of the program. Some non-training solutions include providing job aids for employees to help them remember tasks, redesigning forms to make them easier to use, rewriting instructions to make them clearer, and performing detailed task analyses to see if job design might be the problem.

EXAMPLE: Literacy instructors at a women's prison facility designed several job aids for correctional officers and counselors. One job aid, a 3x5 note card, was developed for taking notes to write conduct reports. It was designed to organize details quickly and completely. The job aid included prompts that acted as memory aids to the writer. For example, words such as "who, when, witnesses, evidence" were listed in a small notebook, so that officers could quickly jot down pertinent information. The back of the job aid consisted of a mini-glossary of words often found in these types of reports. Correctional officers helped develop these glossaries themselves based on words that proved to be spelling or usage problems.

In order to identify which literacy and communication skills are causing problems, look at the entire situation. Build the relationship necessary to be able to make recommendations. Consider what non-training solutions might accompany or substitute for instruction and the cost of developing and providing these solutions. However, you should approach the issue of non-training solutions carefully. Employers will not always be open to these types of changes. For example, if a company spends hundreds of thousands of dollars on a manual to train employees to use a computer system, they might not be willing to have that manual rewritten and reproduced. They might, however, agree to developing a job aid to accompany the manual.

LOCATING RESOURCES AND PLANNING LOGISTICS

- Funding sources include state and federal grants, partnerships with libraries and colleges, workplace unions, and management.
- Program teachers are a crucial element and may need help with using job-related curriculum and becoming sensitive to the workplace culture. Above all, they must be flexible.
- Look for ways to share resources with unions, companies, and training departments.
- Discuss the scheduling of classes around the company's activities to achieve maximum cooperation.

LOCATING FUNDING SOURCES

There are several options for funding programs. Some external sources are state level grants, federal literacy grants, and partnerships with local libraries, colleges, and volunteer organizations. To get more information on federal and state grants, contact the U.S. Department of Education or your state department of adult or vocational education.

Many unions also offer viable funding sources because they recognize that technology is driving jobs and promotions, and that seniority no longer offers sufficient job protection. Larger unions are working to be model educational providers to their membership. Smaller unions and locals often work with management to develop local educational and support programs.

EXAMPLE: A literacy program at a textile manufacturer is funded from various sources. The manufacturer provides office and classroom space and supplies. The program also shares resources from other departments such as computer-based instruction programs and workplace manuals. The textile union funds the instructor's salary and the cost of materials such as books and an independent grant funds a portion of the family literacy strand offered at the company.

Use your advisory team to explore various funding possibilities. Consider ways to get multiple sources of funding. When considering funding sources, keep in mind that outside funds may need 100% employer match; federal funding is usually seed money to start programs; and there may be some delay in obtaining funds. Whatever funding path the company takes, make sure that you work with the person in direct budgetary control from start to finish.

Depending on your specific situation, you may have to write a proposal to fund your workplace literacy program. The proposal will define the program in terms of time, resources, support, and finances. It is important that your proposal be as clear and detailed as possible.

The proposal should include objectives and rationales for the program, a step-by-step outline of the project, an evaluation plan, a management plan detailing logistics and a timeline, a budget, and a listing of personnel involved.

Funding agencies usually have specific guidelines for how proposals should be written, but clear organization, concise writing, and a minimum of jargon form the foundation of a good proposal.

STAFF DEVELOPMENT

Program teachers are a crucial element of any workplace literacy program. Once instruction has started, they are the ones in day-to-day contact with the workers, and a program can succeed or fail depending on how well the teachers can interact with the learners in their classes.

Because workplace literacy is a growing area, many teachers in workplace programs are recruited from adult basic education or school settings, and have no experience of how to teach job-related curriculum. They may be accustomed to being the subject matter expert in an academic classroom, and so have some difficulty coming to terms with the shared responsibility of many workplace classes, where the learners are content experts on their jobs and teachers need to learn as well as teach. Another aspect of teaching in a workplace is sensitivity to the workplace climate and culture, and respect for the individuals as adults. Here again, the teacher can learn much from the workers, by listening carefully and not making assumptions about them or their jobs. In this way, a relationship of confidence can be established, which will facilitate teaching and learning.

Much of what a workplace instructor needs to know and do can be summed up in one word: flexibility. Teachers should always be prepared to learn from the workers in the class and adapt instruction to their immediate needs. More generally, a teacher's view of the whole workplace program should be similar to that of a program developer. This handbook can be a useful resource for training new workplace educators. The Appendix contains a series of summaries suitable for use on an overhead projector, to facilitate the task of a trainer.

However well a program has assessed the needs of a workplace, and however good a curriculum has been developed to meet those needs, it is ultimately the instructor in the classroom who determines the success of the program. It is therefore vital that a program selects good teachers and prepares them well for their role in the workplace.

ALLOCATING RESOURCES

Sufficient resources and their sensible use are very important in establishing a smoothly running program. Resources include money and personnel, but also relationships with key officials, facilities, supplies, storage space, and ways of advertising your services to employees.

When planning your program, discuss with both company and employee representatives the possibility of using shared resources. Here are some suggestions:

- Maintain relationships with the various departments of companies and call on them for ideas for solving problems.
- Negotiate with unions to draw on their expertise and to use their facilities. Some unions have classrooms that may be available to your program.

- Investigate using loaned resources. For example, having the company's computer programming department design your computer-based instruction may save money.
- Discuss in detail the facilities you will have to work in—it is very helpful to be able to stay in one area and not have your class locations shifted around.
- Find out what supplies and what trainers you can share with other departments, and negotiate with them.
- Arrange for some form of secure location or storage space so that supplies are not appropriated by other departments.
- Use the company's advertising department to design advertisements for the company newspaper.
- Have students contribute articles about the program to the company newspaper.

PLANNING PROGRAM SCHEDULES

Planning the logistics of a program can minimize potential problems with scheduling. Consider the company's production schedule and how you might incorporate classes into it. The classes must be as convenient as possible for everyone without interfering with business. Options include scheduling classes before and after shifts, and developing take-home lessons and computer-guided instruction to allow make-up time.

Other considerations include starting courses when the company has a slower production schedule. You could include whole departments while a line is temporarily closed as opposed to taking a few members from several different departments and allowing work to continue. Discuss the options with management, supervisors, teachers, and union officials before developing a course schedule. The most important thing is to be flexible.

BUILDING EFFECTIVE RELATIONSHIPS

To build an effective literacy program, you must

- gain the support of management and employees, and
- maintain positive relationships with management, employees, and union representatives.

GAINING MANAGEMENT AND EMPLOYEE SUPPORT

- Balance education and productivity needs.
- Involve management and employees in program development.
- Decide together what needs can be addressed first with the time, money, and resources available.
- Develop a shared vision for the future.

Educators developing workplace literacy programs must confront several initial questions. What are good ways to involve employee leadership in the development of literacy programs? How can education and productivity needs be balanced? Like management, employees and unions have goals. Some of these overlap management goals and some relate to other more general worker concerns. Find out about these goals by interviewing employee leaders and getting their feedback on program plans. Secure cooperation from top leaders as well as plant and department level representatives. And, of course, consult contract rules.

Unions can be a valuable resource. Union members can participate in your program by serving on advisory teams, setting up joint programs, or providing funds. You can also have them recruit students, provide space for classes, and suggest classes. Like company management, unions often have specific needs and goals. Find out what these are. Make sure you always consult with the union about any decisions that are made. When unions are not available, you may have a more difficult time identifying employee leaders. But it is important to do this since programs without employee support tend to fail.

It is difficult to design a program to meet everyone's needs. As a program designer, you have the job of determining which educational needs will be met initially, which later, and which not at all. This is a difficult job when you are sitting in a room with various representatives who have vested interests in different outcomes. For example, human resources may want you to address ESL education needs specifically. Union representatives want to maintain employee job security and want you to address general education needs. The company's training department may want you to address specific technical training for a new production process. Employees may want to learn the general use of computers. You have to decide what needs can be addressed first with the time, money, and resources you have. This involves negotiation, persuasion, and a good deal of explanation about realistic expectations.

It is important to develop a shared vision among the representatives and look for innovative strategies for meeting their needs. For example, you might design a multi-strand program that initially offers computer-based training on new production processes. Later strands would include ESL and general basic education skills assistance. If time and money limit your start-up options, you may have to begin by addressing the most pressing needs first.

Developing a shared vision for the future is important not only for maintaining good relations with various representatives; it also makes a program more effective in the long term. If there is no shared vision among the representatives, it may be best to agree to provide a more general type of program or not have a program at all.

MAINTAINING RELATIONS WITH EMPLOYEES, MANAGEMENT, AND UNIONS

- Successful outcomes and satisfied clients are achieved by reaching jointly agreed upon and reasonable goals.
- Constantly review the program's progress with supervisors, managers, and unions.
- Keep the lines of communication open, if possible through an in-house liaison person.
- Keep accurate records for your program on finance, and learner attendance and progress.

Many workplace classes last only 20 to 30 hours, so it is wise to set up well-defined and limited goals from the beginning. In order to capture and retain the support of employees, management, and union officials, all partners need to see results from your program. Listen to concerns and include them in all the logistical considerations of the program. Develop clear program goals and then make sure the goals are achieved. You should not promise to deliver more than is realistic. Successful outcomes and satisfied clients are achieved by reaching jointly agreed upon and reasonable goals.

Supervisors, managers and unions want to and should feel a part of the positive results of a literacy program. It is a good idea to constantly review progress of employees in general terms with supervisors without referring to individual learners by name. You can also hold recognition ceremonies to reward both employees and supervisors. Before doing this, it is important to determine whether learner privacy is an issue at your workplace.

There are advantages to having a dedicated, fully-trained, in-house person in charge of the program to assure open lines of communication between literacy educators and supervisors. If possible, this person should be in a highly visible office, have rapid access to all supervisors, union representatives, the advisory team, instructors, and involved management, and have access to facilities for electronic mail or other rapid communication. All supervisors and managers who are involved in the literacy program should be made aware of the classes in progress and those planned for the future.

Also, it is important to keep accurate records for your program. You should track how much money is spent and what it was used for, how effective the instruction was (e.g., pre- and post-test scores), and the dates employees are absent and why. You can use these records in later conferences with the advisory team or with management. Plan to check regularly with supervisors and the joint advisory teams to see if the original needs are being addressed and to see if your program is having an impact.

As a literacy program developer, it is important for you to realize that you may be serving in the role of a change advocate or change agent. A change advocate supports the need for change; a change agent plans changes and attempts to implement them. Change agents try to implement and manage change by identifying those that are critical. They analyze each change and design a plan to integrate the change successfully. They must also execute and

revise that plan as needed (Dormant, 1986, p. 238). Literacy programs are often bound up with larger changes going on in a company such as changing job descriptions or downsizing, and, as the program designer, you need to be aware of the politics of change.

Other Suggestions for Designing an Effective Program

Other elements of an effective literacy program include

- creating positive relationships with all parties involved,
- being flexible and creative in solving problems, and
- making sure your clients and advisory team are satisfied with the program.

Creating a positive, actively involved relationship with employees, management, and union officials will help maintain support for the program. By meeting regularly with joint advisory teams, you can help make sure your clients are satisfied with the directions and outcomes of the instruction. As a program designer, you should also understand the need for flexibility. Anticipate and plan for problems and find creative solutions. The problems of starting a workplace literacy program are often fairly predictable. These solutions, if planned ahead of time, can be in place before the need arises.

Some of the common problems and solutions include the following:

- Production supervisors have many short-range goals to be met and tension arises when students need to be in class and a "hot order" has to be completed. The solution for this problem revolves around having the supervisors "buy into" the long-range goals of the program and scheduling classes at times when production is most likely to be slower. Instructor flexibility is also a must.
- Scheduling classes should include discussions with and decisions from your advisory committee as to which classes will be taught (or taught first), the number of classes a person can take at a time, and the number of people in each class. Waiting lists and open or closed entry classes should also be discussed.
- Confidentiality is a major concern to some students taking classes. They need to know from the very start that their records will not be shared with management, union, or others. However, management can ask you about the progress of the class as a whole and is entitled to be given this information. The management is also entitled to know if an employee is taking or has taken a particular class.
- Labor/management issues include possible strikes from either unions or other employee organizations. You do not want to ask either side to cross a picket line, and you should not cross that line yourself. The ruined relationships that result can kill a program. Some teachers have continued classes at neutral sites.
- Know the policies and relationships between employees and management so you will know whether you can go out on the floor for information or whether you have to remain in the classroom while others gather information for you.

- Be very clear from the beginning as to whether the program is an employee benefit or a management tool or both. As a benefit, learner goals take top priority. If the program is totally funded by management, the balance leans much more heavily towards work performance. If learners feel deceived about what you are offering, it will seriously injure your program.
- Using the word *literacy* in the title of your program gives the impression of very remedial work. Using a catchy title or logo avoids the problem. (Examples include: "Skills Today for Achievement Tomorrow (STAT)" used by Blue Cross and "The Pepsi Challenge" used by Pepsi.)

CHAPTER SUMMARY

In order to plan a workplace literacy program that is in tune with the needs of the workforce, you should organize an advisory committee to a) help you learn about the job site, b) interview workers, c) identify basic skills that need to be improved, d) determine available resources; and e) help you plan the program. After you analyze education needs, you will be able to design a more effective program.

In designing the program, you should consider what types of instruction to offer and the needs and goals of various groups. Workforces are most often made up of employees with a broad range of skill levels. Non-training solutions should also be considered since they will increase the effectiveness of the program.

Locating funding and resource providers is an important part of planning the program. Funding through multiple sources often creates a stronger program since key groups are directly involved. Getting groups to invest resources is another way of getting them involved. Planning the logistics of the program early can eliminate potential scheduling problems. Consider the company's production schedule and do your best to avoid inconvenience to company or employees.

Gaining support from management and employee representatives is another way to build an effective program. Representatives from both groups should be on your advisory committee. They can help you plan and set up the program, locate resources and funds, and recruit students. As a program manager, you should be aware of issues such as class schedules, confidentiality, labor/management issues, workplace policies, and workplace politics. Effective management of the program on your part can lead to positive relationships among all parties involved.

As you begin actually developing the program, you will look in more detail at analyzing the need for education, determining what types of classes to offer, how to design your curriculum, and how to recruit students. You will learn more about these things in Chapter Three.

CHAPTER THREE

DEVELOPING A WORKPLACE LITERACY PROGRAM

When developing a successful workplace literacy program, it is important to consider what types of performance problems exist, what types of curriculum you will use in your instruction, and how you will recruit students. In this chapter, you will learn how to

- analyze performance problems, job tasks, and literacy-related job skills;
- develop customized curriculum, select off-the-shelf materials, and develop job aids; and
- plan for student recruitment.

The first step involved in developing a workplace literacy program is to find out where the performance problems exist. This is done by performing a job task analysis. The purpose of a job task analysis is to look at the overall picture, examining several jobs, and determine where performance problems are occurring. In some situations, this may already have been done. For example, problems in technical training classes or quality assurance groups may have led to a request for additional education.

After you find out which jobs have performance problems, you can then determine which literacy-related skills are involved in those jobs, and which specific skills are causing difficulty to workers. This literacy task analysis then serves as a guide for helping you design your own customized curriculum. You will also have to decide the best mix of designing your own curriculum and using off-the-shelf materials.

How well you recruit learners can have a considerable influence on the success of your program. There are several factors that can improve the quality of your recruitment. These are providing incentives, using other employees to recruit, maintaining visibility, and including employees in the planning process so the program meets their needs and interests.

CONDUCTING A TASK ANALYSIS

To address the needs of the company and employees;

- analyze jobs to determine the particular tasks that they require;
- locate job or task areas that need improvement; and
- determine if literacy-related job skills need to be improved.

To make sure your program ties in with the needs of the workplace, you will need to become very familiar with the jobs of your target group and determine where instruction needs to be focused. When you analyzed the needs

of the company (see Chapter Two) you probably found several areas where improvement was needed. Did you decide that education can help the company and employees meet those particular needs? If so, you now have to decide what type of instruction needs to be offered, how it will be done, and to whom it will be available.

To do this, there are two processes that will enable you to examine the areas of need and analyze how your program can help address them. One is to conduct a large-scale job task analysis of a whole company or department. The other is to concentrate on a few jobs where performance problems are known to exist. You may not be able to go through the first of these processes due to limitations of resources or company regulations. However, both are valuable tools for helping you build the foundation of an effective workplace literacy program.

In a full job task analysis, you will need to become familiar with all the jobs of your target group, whether it is the entire company or a small department. This involves examining a group of jobs, and determining and mapping the major tasks for each job. For example, if you performed a job task analysis at an insurance claims department, you would examine each job in the department, determine the major tasks required to perform the job, and map and organize those tasks in a chart. You will rarely be asked to look at the whole company and find all the performance problems that exist within it. Most often, companies will report problems in particular areas, and you will focus on finding the specific performance problems in those areas. If you are unable to perform a full job task analysis, you will, in any case, want to conduct an informal assessment of worker needs by focusing on a few key job tasks. This will allow you to move on to the second process of analysis.

This second process involves looking at specific tasks for each job and determining what literacy skills are required to perform each task successfully. This is called a literacy task analysis. You would first examine information gathered from your job task analysis (whether formal or informal) and determine which tasks require literacy-related skills. Then you determine what types of literacy skills are required. For example, some literacy-related skills required by an insurance claim clerk are asking questions and taking notes from conversation, skimming policy manuals and locating information, reading manuals for new information, and summarizing information back to the client.

- Find out the following
  Which tasks are critical to the job?
  What skills need to be enhanced?
  Are there skills associated with promotion?
  Do jobs require retraining?
- Gather information through interviews with employees, supervisors and managers, observation of workers on the job, and examination of printed materials used by workers.
- Organize your information into a chart.

When performing a job task analysis, you should examine four aspects of the workplace. First, you will want to know which tasks are critical to the job. For example, if a worker's performance in a particular task leads to unsafe conditions, then it is critical that he perform this task correctly. Second, find out if a number of employees make frequent mistakes in a particular task. If so, determine which skills need to be enhanced. Third, find out if there are skills that are associated with promotion. Employers often report that they have reliable workers who demonstrate desirable traits such as a positive attitude, punctuality, and dependability, but who lack the basic skills required for higher level jobs. Fourth, determine whether or not the job requires retraining. Many workers are returning to the classroom to learn highly technical processes or how to operate sophisticated equipment, and they need to learn new academic and basic skills to support this.

Job task analysis includes interviewing various people, observing employees on the job, and gathering job-related print materials. By interviewing employees, managers, supervisors, human resource personnel, and trainers, you can gain a wide range of information about the company and its performance problems. Employees can provide information on specific performance problems such as what types of discrepancies occur between what is policy and what is practiced. For example, if an instruction manual has an incorrect or outdated procedure, employees can identify that procedure and tell you how they perform it correctly. Supervisors and managers can describe performance problems that are occurring and what types of work errors they encounter in their own departments. Human resources personnel can provide information on the educational requirements for particular jobs and whether current employees meet those requirements. Trainers can tell you what types of training programs are already in place so you can avoid duplicating efforts. Information from all these sources will help you better define the focus of your curriculum and build a more credible program.

The information that you gather in interviews with employees, managers, and supervisors will help you choose which jobs to analyze. When selecting jobs and job tasks on which to focus the literacy task analysis, look for areas of agreement among the various groups. For example, if four of five managers

report that entry-level quality control technicians have difficulty reading manuals and gauges, calculating decimals, and recording the average, range, and total for the product weights, then the quality control technician would be an appropriate job to analyze.

Observing employees at work is also a valuable way of obtaining information. After getting permission from the appropriate persons, you may be able to shadow employees during a shift and observe them doing their jobs. Plan to ask questions and get a good understanding of what is done in a certain area and how and why it is done. It is a good idea to document your observations, if possible, using a video camera, still camera, or cassette recorder. Or you might bring along a note taker to help you in recording your observations. First make sure that you have the permission of both the employee and employer before doing any of these. In many workplaces, photography will not be possible for reasons of security or competition.

A job task analysis is often done in several steps. First, you gather all the information you have obtained from interviews, notes, and observations. Then you organize the information into a chart format to make it easier to read. The following example shows both of these steps.

EXAMPLE:

Job: Bank Teller

Task: Handling customer requests for bank account information

Step 1 - Gathering Information

The notes you take during an interview with a bank teller might look something like this.

"Talks with customers—says hello, asks questions about their request.

She figures out what information is needed.

Finds out if they are requesting information or if they have a problem.

Takes notes about what the customer is requesting.

Looks up information needed from computer files or brochures.

Delivers information to the customer or helps him solve the problem."

Step 2 - Organizing the Analysis

To help organize your task analysis, draw two columns on a sheet of paper. In the left column, write a brief description of the tasks. In the right column, list the sub tasks of each main task.

TASKS	SUBTASKS
1. Talk with customer.	1.1 Talk with customer.
	1.2 Ask the customer how he can be assisted.
2. Take notes on conversation.	2.1 Recognize important information.
	2.2 Write down key words, phrases, and numbers.
3. Determine what the customer needs.	3.1 Ask the customer questions about what he needs.
	3.2 Determine if he needs information or help with solving a problem.
	3.3 If information is needed, go to the source of information such as the computer files or bank brochures.
	3.4 Gather the information needed.
4. Present information to the customer.	4.1 Present information in oral or written form.
	4.2 Help the customer solve the problem.
	4.3 Suggest follow-up information if necessary.

After conducting the job task analysis, review the information gathered and determine which job tasks are most critical and pressing. To do this, you may need to ask questions of experienced workers or supervisors. Ask questions like the following:

- Is the current training addressing the needs of the workforce?
- Are there changes in job tasks or responsibilities that require more skills?
- Are there enough workers experiencing problems to justify setting up a class?

Find out where the discrepancies, confusion, or problems exist, and which ones can be helped by literacy or basic skills instruction.

ANALYZING LITERACY-RELATED JOB SKILLS

After determining which job areas have performance problems:

- decide which tasks are most critical and pressing;
- find out what the specific problems are; and then
- decide if these problems are caused by a need for improved literacy skills.

By performing a literacy task analysis, you will be able to determine what types of literacy skills are needed to perform a job and then design your curriculum based on that information.

A literacy task analysis is a method used to analyze the aspects of job tasks that require reading, writing, computation, and problem solving (Drew & Mikulecky, 1988; Mikulecky, 1985). It is a detailed account of workers' thought processes when they use print materials on the job. The purpose of a literacy task analysis is to identify which performance skills need improvement. For example:

- Are there concerns about safety hazards?
- Are employees making production errors?
- Are large amounts of material being wasted due to improper handling?

By finding out "where the pain" is and what skills are needed to improve the situation, you can better identify what types of instruction are needed. You must also determine how many workers are experiencing problems. If only one out of fifty workers is having problems, large-scale instruction will not be a cost-effective solution.

When you observe workers carrying out a job task, it is important that you obtain a thorough understanding of how the task is done. For example, if workers use information from a form, find out exactly which parts of the form are relevant and how the information is used. Keep asking questions to clarify your understanding and to prevent the workers from glossing over steps because they are very familiar to them. Ask experienced workers or supervisors where they see problems occurring and how frequently, and find out as precisely as you can what skills are involved in those steps of the task. Remember that you will be building curriculum around the skills that workers need to learn, using the job materials now being demonstrated to you.

To help organize your literacy task analysis, use a chart to list a brief description of a task and the literacy skills required to perform that task. An employee may use several literacy-related skills to complete a task. For instance, using the bank teller example of handling customer requests for account information, one task related to that job is being able to determine what the customer needs. Following is part of a literacy task analysis related to the example described previously.

EXAMPLE:

Job: Bank Teller

Task: Determine what the customer needs.

Subtasks	Literacy-Related Skills
3.1 Ask the customer questions about what he needs.	3.1.1 Formulate questions about the request.
3.2 Determine if he needs information or help with solving a problem.	3.2.1 Analyze verbal information from customer's responses to the questions.
3.3 If information is needed, go to the source of information such as the computer files or bank brochures.	3.3.1 Scan information resources such as brochures or computer files.
3.4 Gather the information needed.	3.4.1 Analyze verbal and written information.
	3.4.2 Summarize information.
	3.4.3 Take notes.

Problems may occur with certain subtasks because workers lack the skills necessary to perform them. If, for example, some bank tellers are giving customers incomplete information, this may be due to their inability to scan brochures quickly and efficiently. Knowing this can help focus instruction on the techniques of skimming and scanning.

BUILDING CURRICULUM FROM THE LITERACY TASK ANALYSIS

- Select tasks that cause most difficulty and build curriculum around those tasks.
- Collect samples of print materials used by workers and develop curriculum activities from them

During interviews and observations, you should document the tasks involved in doing a particular job. Be sure to collect samples of any literacy materials and discuss their importance and frequency of use. You can then use the most important materials to help you develop your custom-designed curriculum.

There are two types of job-related materials: task oriented and general. Both include many things that the worker, or you, may not think of initially as reading. Examples of *task-oriented* materials are a work order that tells a machine operator which drill to use or a maintenance manual that tells a mechanic how many quarts of oil to put in an engine. On the other hand, *general* job-related materials include items that make workers more confident, knowledgeable, and valuable to a company, but these items are not needed to carry out the job. Examples of general materials include policy manuals, insurance information, and retirement fund information.

After you select the skills that cause the most difficulty, you then design curriculum to help workers improve those skills. Develop lessons and activities using the materials gathered from the job site that relate to the targeted skills. As you identify these sample materials, make copies of them so you can use them to design your own curriculum.

EXAMPLE: The following is one step from the task analysis of the bank teller and some possible lessons that could be used to improve performance of that task.

Literacy Skill Applied	Possible Lessons
Summarizes information and takes notes.	To simulate the work environment, use role play situations. Tellers can practice summarizing information and taking notes using the bank's manuals, brochures, and computer system. Practice note-taking techniques based on a customer request using the bank's computer system, manuals, and brochures.

In some cases, you may find that there are few problems in current jobs, but problems are anticipated in the near future when jobs will change as new technology is implemented or technical training classes are required. In such cases, the task analysis should focus on the skills required by these future demands. You may need to coordinate with management or supervisors to have a demonstration of how a certain job would be accomplished in the future.

DEVELOPING CURRICULUM

When developing curriculum, it is important to

- use the task analysis to create custom-designed curriculum that links job skills and learner interests,
- select off-the-shelf materials to supplement your custom-designed curriculum,
- determine an appropriate mix of custom-designed materials and off-the-shelf materials, and

- use job aids to reinforce the instruction.

Effective workplace literacy curriculum links together current basic skill levels, job requirements, and learner interests. When making decisions about curriculum, you should consider what mix of custom-designed materials and off-the-shelf materials works best.

DESIGNING INSTRUCTIONAL MATERIALS

- Design curriculum and instructional materials using the literacy task analysis and employee interests.
- Integrate instruction for job tasks with the literacy skills needed to perform those tasks.
- Maintain a balance between job-centered and learner-centered instruction.
- Make sure that you teach correct ideas and do not conflict with other training already in place.

Many literacy program administrators recognize the importance of using custom-designed materials. In a survey of 121 workplace literacy program reports from the early 1990s, 52 contained information about curriculum and 50 of those reported some use of custom-designed materials (Mikulecky, Lloyd, Horwitz, Masker, & Siemantel, 1995).

Custom-designed curriculum consists of instructional materials that you develop using the literacy job task analysis and additional materials relevant to employees' home skills or personal interests. This usually involves integrating the instruction for job tasks with the instruction in literacy skills necessary to perform those tasks. Your curriculum is based on the information you have obtained from interviews, observations, job materials you have gathered, and the literacy task analysis.

It is important to maintain a balance between job-centered instruction and learner-centered instruction. By using both types of materials, you will capture the employees' interests and encourage them to practice new skills both on the job and at home. Learners will also see the relevance of the instruction to both their work and personal lives.

EXAMPLE: At a medium-size machining shop with mainly female employees, workers were having trouble following directions in a new machine maintenance manual. The literacy instructor used the manual as a basis for designing lessons. She copied pages of the manual and had the class read and interpret these in a variety of situations. Sometimes they worked in pairs, sharing their understanding of the instructions. At other times, they worked individually, writing their own paraphrases of the manual, which they then shared with the class. After the instructor found out that several of the employees were interested in cooking, she incorporated recipes into the instruction. Since recipes also proceed step by step, they helped teach the same skill—following step-by-step directions. For each exercise, the instructor modeled how to

read the directions, and pointed out similarities and differences between the strategies employed in understanding them.

The type of instruction you present must be valid. Carefully analyze the suitability of the materials you create. Ask members of your planning group, trainers, supervisors, and a few of your students to review the materials. It is important to make sure that you teach the correct ideas and do not conflict with other training already in place.

Learners can also help you develop and design the curriculum. By getting their input throughout the planning process, you will be able to produce a more credible and valued curriculum. They can provide direction in helping you define learner interests and how to best incorporate those interests into the curriculum. They can also point out discrepancies that occur between policy handbooks and their job practices.

You may find that the number of skills to be taught is more than your program can handle in one course. Or you may find yourself in the position of not having sufficient time and resources to design all the curriculum you need. This is when it is important to consider how off-the-shelf materials or job aids can help you further your program.

SELECTING OFF-THE-SHELF MATERIALS

- Supplement your customized curriculum with suitable commercial materials.
- Choose materials based on their compatibility with your literacy task analysis, your custom-designed curriculum, and the needs of the workforce.
- Supplementary materials include adult educational materials, vocational texts, and industry publications.

Designing your own instructional materials takes time, energy, and knowledge. Successful workplace literacy programs contain a good deal of customized curriculum, but be careful not to reinvent the wheel. Publishers have realized the extensive market in the fields of adult education and vocational training. There are many excellent materials that you can use in your courses to supplement the curriculum that you design yourself. In addition, many programs have entered copies of teaching materials into the ERIC (Educational Resources Information Center) database. When you have developed your own program, you can assist other workplace educators by sending reports and materials to the ERIC system. There are several different clearinghouses for different aspects of education, and the appropriate one for workplace materials is the Clearinghouse on Adult, Career, and Vocational Education. You can contact this clearinghouse by telephoning 1-800-848-4815.

Supplementary instructional materials may be adult education materials, vocational texts, or training publications. Choose materials based on their compatibility with the literacy task analysis, the custom-designed curriculum, and the needs of the workforce. An adequate blend of custom-designed and

published materials will provide your students with a job-specific and comprehensive course.

EXAMPLE: In a literacy program at a large insurance company, several sources of published materials were used. The primary focus of the course was to improve report writing skills. The instructor developed customized curriculum on how to write reports properly and used the company's report writing guidelines. She also used several types of off-the-shelf materials to help improve grammar and writing skills, such as a book that gave instructions on how to write concise paragraphs, an English grammar book, and a dictionary.

There are many places you can find published materials to use in your program. For example, your planning group may be able to help you find some good materials related directly to the industry. You should also talk with professional organizations related to the workplace, and publishers of trade journals and magazines. Libraries, vocational or technical schools, and bookstores are other good sources. You may also check within your state for government agencies, related occupation fields, or private industry groups that can offer guidance.

Curriculum designers, training directors, and publishers of textbooks and educational materials are interested in things that work well. Once you have located and used various materials, you may find it beneficial to communicate with the author or publisher. Let them know how you used it and how it might be further developed. Discuss any suggestions for revisions. You will be enhancing the field of workplace education as well as guiding the development of future materials.

Evaluating the Suitability of Off-the-Shelf Materials

You may use published materials as part of the core curriculum, to reinforce instruction, to serve as a resource guide, or to provide enrichment. To determine the suitability of published materials, consider the following things in relation to your own methods and goals:

- intended use of the materials,
- reading level,
- method of instruction,
- amount of coverage of the subject matter, and
- price of the materials.

Some strands of instruction will rely more heavily on off-the-shelf materials, while other strands will lean toward a more customized approach. The needs of your target group and the goals and objectives of your program will help guide decisions about curriculum development.

Developing Job Aids to Further Your Instruction

- Job aids restructure information to make it more easily understood, so that job performance can improve.
- They simplify job tasks to provide ongoing support after instruction is finished.

- Learners can help develop job aids as part of practicing new skills.

A good solution to consider for simplifying job tasks is to use a job aid. Job aids, like custom-designed curricula, are based on the literacy task analysis. A job aid simply restructures information so it can be more easily understood and more accessible to the workers (Mikulecky, 1990). Job aids are designed to provide information, reinforce instruction, or provide ongoing support for workers after instruction has been completed.

Although the format may vary, all job aids are designed to improve job performance. A job aid may take the format of a flow chart, a checklist, or a list of instructions. It may include prompts or clues, or indicate what type of information is needed to correct a procedure.

EXAMPLE: At a large manufacturing company, employees were being trained to work in self-directed work teams but they were having trouble communicating with each other. After providing instruction in communication skills, the literacy instructor asked the employees to help her make a small job aid listing various communication strategies. This not only reinforced the skills and provided practice, but also served as a reminder of how to handle communication problems after the class had finished.

Job aids can also be a productive part of a workplace literacy curriculum. You can reinforce classroom instruction by utilizing them as part of practice time. If workers are expected to improve their basic skills, they must be allowed sufficient time to practice these skills. Using jobs aids provides much needed practice time. Getting learners to help you develop the job aid also provides expanded practice time. Learners often practice the skill as they help write the job aid. They also provide valuable guidance for deciding on the format—whether it is a laminated card, a form, or a wallet-size checklist.

You may also use job aids to teach employees how to do a job. When a new skill is introduced, use a job aid to simplify the skill so the worker can experience success in the classroom and on the job. They can also be used when there is not sufficient time or funds to teach all the employees.

DEVELOPING A RECRUITMENT PLAN

- Strategies for building an effective recruitment plan include providing incentives for learners, asking supervisors and your advisory committee for help, maintaining visibility within the company, and making sure you are meeting learner interests and needs.

Effective recruiting is essential to a successful literacy program, especially during the first year. More than likely, you will be competing with other training and job activities to recruit students for your program. For this reason, offer the same class at different times during the year so employees will have several opportunities to attend. Heavy work schedules, vacations, or illness may prevent someone from taking a course the first time it is offered.

Recruiting students for your program requires that you reach all employees in your target group. Encourage members of your planning group and other key workplace figures to work with you to recruit students. On-site personnel are more familiar to the workforce than you are, and their involvement will lend credibility to your program. Several recruitment methods have proven successful in workplace literacy programs. These are providing incentives, using other employees to recruit, maintaining visibility, and meeting the needs and interests of the employees.

PROVIDING INCENTIVES

Your job would be easy if all employees signed up for literacy programs because they recognized the need to upgrade their skills. The fact is, incentives play an important role in enticing people to take part in special training. Programs with built-in incentives prove to have better participation than those that do not.

The employer may decide to offer monetary incentives, such as pay for attending classes or a bonus paid at the completion of a course. However, incentives may take other forms:

- attendance fulfills training requirements;
- participants receive special recognition from supervisors;
- students receive certificates in employment folders; or
- course completion offers an increased opportunity for upward transition.

Other incentives that have been successfully employed by workplace literacy programs tend to focus on external awards such as free meals, lottery-type drawings for the people in classes with prizes that include cash, meals, goods, services, and donated gifts. Amenities and support may be provided such as child care at the site or refreshments during class.

While none of these incentives are costly, they send a message of support from employee representatives, union, and management. In addition to these short-term incentives, there are long-term incentives for employees. These include opportunities for them to

- gain enough skills to maintain their current positions,
- gain sufficient skills to earn promotions,
- gain sufficient skills to allow them to seek a new job, and
- see the value of continuing literacy for themselves and for their children.

Employees are generally aware of the potential benefits, but they may need help seeing how these intrinsic benefits apply to them.

EXAMPLE: The administrators at an auto manufacturing company offered a variety of incentives to program participants. Employees attending a technical training strand in statistical process control received overtime pay for attendance. In the case of incompatible class and work schedules, some employees were relieved from their work area to attend class. Employees were not required to work

mandatory overtime on the day they had class. All participants in the program received credit toward mandatory training requirements, completion certificates in their personnel folders, and recognition by the company.

USING SUPERVISORS TO RECRUIT

Supervisors of your target group can be helpful in recruiting. Remember that supervisors are the individuals who witness the basic skills errors being made on the job. They are often the ones who have to correct the errors of their workers. The relationship you have with supervisors is vitally important. They may be able to recommend attendance in a course to certain employees who are having difficulty with particular job tasks. Supervisors can recruit employees who receive low performance ratings to help them raise their level of performance. They often decide issues regarding shift coverage and overtime pay, so it is important to get their buy-in for the program. Their support and input means you will present a program that addresses the real problems and makes the time spent in class valuable.

Be aware of the rights and attitudes of employees concerning recruitment. In some places, recruitment by supervisors may be welcomed by the workforce. However, on other work sites, recruitment by supervisors may be viewed by the workforce as giving special treatment to certain individuals or as violating employee confidentiality about literacy difficulties. Discuss recruitment strategies with managers, union officials, or other decision-makers in the workplace.

BEING VISIBLE

How you communicate within the workplace depends on the atmosphere of the company. In many companies, going to supervisors and employees is very helpful. You meet the people and they are able to get to know you. You can talk with them about actual problems and education needs that they see. The more you are able to act as an ombudsman and encourager with union representatives and supervisors, the more they are likely to share problems, ideas, facilities, and opportunities with you.

However, there are two common problems associated with open recruiting. (a) In some situations, people do not want others to know that they are attending classes. (b) Going in to a hard hat area entails physical danger to yourself and the people working there and may not be possible for insurance reasons. In both of these situations, it is preferable to have advocates on the floor.

If confidentiality and safety are not major issues, it will be useful for you to become visible to employees. Workers notice even slight changes in the work atmosphere. Beginning with your first visit to the work site, engage employees in conversation. Show interest in their jobs and introduce yourself to workers who are group leaders or shift supervisors.

Recognize and strive to recruit the leaders within your target group. These are employees looked up to by other workers, and if they sign up for a class, others may follow. Stress the "buddy system" in your recruitment strategy. Recruit co-workers who enjoy each other's company.

Make yourself visible and available to workers often. Schedule information sessions before a work shift. Display program information in employee lounges or cafeteria settings. Listed below are several other types of communication strategies.

Written or Visual Strategies

- Place announcements in the company newspaper. It is very helpful if the article or announcement can be written by people who have taken the instruction being offered.
- Place fliers with pay checks.
- Have printed explanations of the company's training requirements.
- Use in-house commercial videos, highlighting both the program and the coordinator.

Personal Strategies

- Have a person in the break room or other convenient location at regularly scheduled times to answer questions and talk to workers.
- Communicate directly with supervisors, so that they can share information with their employees. Often supervisors do not know what is available.
- Make sure a person is available regularly to answer questions and to counsel employees about classes.
- Arrange for regular formal and informal "plugs" from union or employee representatives.

EXAMPLE: At a literacy program in a correctional institution, getting to know employees was not always easy because of the nature of their work. To recruit people for each course, the instructor attended roll calls, addressed correctional officers, spoke to department heads at their meetings, partnered with the training officer and visited various work areas, posted flyers and registration forms in break areas, and displayed information in the payroll office.

MEETING THE NEEDS AND INTERESTS OF LEARNERS

Including learners in the planning of instruction can also serve as an incentive. If they feel that the instruction is relevant and their needs are being met, they will be more supportive of your program. It is important that you know what their priorities are before making any decisions about the curriculum.

If the company is targeting critical needs for all of its employees, there may be company-wide testing. This testing should be followed with personal counseling to help employees select what type of education they need. Employees often need help in knowing what their test results mean and in what order courses should be taken.

People need to see "what's in it for me" before they commit their time and energy. For example, a stock room clerk may need to be told that his job is changing. Now he, too, must be able to answer customers' questions since he represents the company. In other cases, employees need to see workplace literacy as the first step to other courses and future job choices.

EXAMPLE: At a manufacturing plant, an interest/needs survey was given to employees to spark their interest in a family literacy program. An area in the employee lounge was used to display materials while a speaker explained the program. In addition, a workshop on family stress was conducted in order to find employees who might be interested in the program.

A recruitment plan should be formulated early in the planning stages. A workplace literacy program without student support and attendance cannot be a success. Be sure to ask members of your advisory team to help you plan your recruitment strategies and where you can get support for special advertising pieces such as a video or brochure.

CHAPTER SUMMARY

To make sure your program matches the needs of the workplace, you will need to analyze the job tasks in the company and focus on the areas where there are performance problems. After determining where the performance problems exist, you will need to find out if those performance problems are due to a need for improved literacy skills. By conducting a literacy task analysis, you can determine what literacy skills are needed to perform a job and find out if employees need to improve certain skills. After collecting information through interviews and observations, you select the skills that cause the most difficulty for workers. Use job-related materials to custom design these parts of your curriculum. Using off-the-shelf materials can save time and resources, so it is important to determine the best mixture of the two types of materials. Developing job aids for employees may also be a good solution for simplifying job tasks and reinforcing instruction.

Effective workplace literacy curricula link together current basic skills levels, job requirements, and employee interests. It is important to maintain a balance between job-centered and learner-centered instruction. By integrating the instruction, you will capture the employees' interests and encourage them to practice new skills outside the workplace.

It is also important to develop a recruitment plan to encourage employees to attend your classes and make your program a success. Issues such as class schedules, employee incentives, supervisor and management support, as well as learner support, all influence what type of recruitment strategies you use. It is important to plan your recruitment strategies early so you can encourage student attendance and support.

As you develop your curriculum, keep in mind that you will also need to evaluate your program with custom-designed measures. Some of the materials gathered in the job task analysis will be the tools you use to evaluate the program. Be sure you match the evaluation to the curriculum you have, and the curriculum to the goals of the program. Chapter Four shows how to develop a program evaluation.

CHAPTER FOUR

EVALUATION AND THE LINK TO PRODUCTIVITY

As you are designing the curriculum for your workplace literacy program, you should also consider methods of evaluation. The purpose of evaluating the program is to assess how you are doing and whether the needs of various stakeholders are being met. Evaluation should reveal the effectiveness of instruction both while it is under way and after the program is completed. This chapter discusses the two types of evaluation that you should perform and describes in detail the methods for carrying out each of them. The first section defines these two types of evaluation—formative and summative—and indicates what each involves. Later sections describe the steps of conducting both types of evaluation. A more detailed discussion with sample measures is available in Mikulecky and Lloyd (1993) and in Mikulecky and Lloyd (1994b).

TYPES OF EVALUATION

Evaluation can be grouped into two general categories, formative and summative. The purpose of formative evaluation is to check the progress of a program while it is still under way so that changes can be made. Summative evaluation, on the other hand, assesses the total effectiveness of the program. Three areas of concern are addressed in summative evaluation: the program's general goals, how much learning took place as a direct result of instruction, and the impact on job productivity.

FORMATIVE EVALUATION

- Formative evaluation checks the progress of a program while it is still under way, so that changes can be made.
- It addresses four areas of concern to the program goals, resources, instructional processes, and impact.
- Issues include Do all stakeholders agree on program goals? Are resources sufficient to achieve goals?

Formative evaluation is conducted in the beginning and middle stages of the program in order to recommend changes needed to keep the program on track. Formative evaluation examines four areas of concern. These are goals, resources, processes, and impact.

Program goals should be shared and understood by all stakeholders, including such groups as teachers, learners, managers, union officials, and so forth. For instance, are learners aware of the stated goals of the program, and do they feel that what they are learning will be relevant to their current or future job responsibilities? Do teachers and managers agree on the program's goals?

Sometimes, misunderstandings between teachers, learners, and management may exist as to what the program is supposed to accomplish. These disagreements need to be clarified and resolved before the program continues beyond a few weeks of instruction.

In addition, formative evaluation should address the program's resources. Are sufficient resources available to meet the stated program goals, and is the program making reasonable progress toward these goals? Resources include class time allocated to achieve goals, appropriate learning materials and space for instruction, and instructors with the training and expertise needed to accomplish goals.

Third, are learning processes such as classroom activities, actual learner practice time, the pace of learning, and so forth, in line with goals and suitable to individual learner needs? For example, a 30-hour class that is 50% discussion with no out-of-class reading is unlikely to achieve much literacy gain, though it might expand employee aspirations, oral skills, and self-confidence.

Finally, what is the perceived impact on learners and their ability to do their jobs? Do groups of stakeholders have good reason to believe that the program is having a positive impact on those it is intended to help? For example, do learners believe that attending classes will increase their chances of advancement within the company, if that is a stated goal?

If problems exist with any of these four areas in a literacy program, formative evaluation will address these problems and recommend changes that could improve chances for success. In addition, it will highlight and report on areas where the program is successful.

EXAMPLE: In a bank, a program was started whose goal was to help tellers use complex math and reading skills to process paperwork on the job. During formative evaluation, interviews revealed that teachers were not using job-related materials to teach these skills, but that they were using off-the-shelf materials to teach only general math skills. The reason they gave for not using a more customized approach was that no preparation time had been allowed before the course was supposed to begin. To solve this problem, the evaluation report recommended that the course be interrupted so that instructors could gather materials and design exercises that related more directly to job tasks. This was not done, but time was allotted for such development before the class was offered a second time.

SUMMATIVE EVALUATION

- Summative evaluation assesses the total effectiveness of the program.
- It examines the program from three main perspectives achievement of program goals, learner gains, and impact on company productivity.

Summative evaluation considers how successful the program has been in meeting its stated goals. Although the majority of the effort involved in conducting a summative evaluation will be expended at the end of the program—or at some major turning point, if the program is ongoing—it is based on assessing learners' literacy abilities both before and after instruction. Thus, assessments should be developed while the curriculum is being designed. Using these as pre- and post-measures will allow results to be compared directly as a means of measuring gains in literacy abilities.

Many programs have goals that go beyond increased literacy skills to achieving changes in literacy practice outside of class, expanding employee educational aspirations, and increasing employees' senses of personal effectiveness with literacy. Interviews and questionnaires conducted before and after instruction can assess impact in these areas.

In addition to measuring gains in literacy ability and life style, summative evaluation also examines the impact the program had on productivity in the workplace. Productivity indicators such as customer complaints, scrap rates, use of suggestion boxes, attendance, and ratings of employees' job performance by supervisors, may show improvement among those who attended classes. So, here too, you will need to gather base-line data on learners before they start class, in order to measure changes produced by the program.

Finally, summative evaluation assesses how well the program fulfilled its stated goals in terms of providing satisfactory service, producing new reusable curriculum materials, and fostering continued learning among employees. Program records such as enrollment and retention rates, samples of custom-designed instructional materials, samples of learners' work, records of employees enrolling in later classes, and any other material connected to the program are gathered and studied. All this information is compiled into a report that documents how successful the program has been in assisting learners and contributing to productivity.

EXAMPLE: In an automotive plant, workers enrolled voluntarily in a program that combined general education (e.g., GED preparation, education in hobbies) with job-related skills instruction. After the first year, when two groups had completed classes that included pre- and post-assessments (e.g., TABE and GED course completions, job task scenarios for job-related instruction), a summative evaluation was conducted. In addition to analyzing pre- and post-test results, evaluators also examined job attendance, use of the suggestion box, and safety violations as measures of productivity. These last two were included because instruction had addressed reading of safety rules and suggestion writing. Also, samples of literacy task analyses and instructional materials were examined as evidence that program goals related to curriculum and instruction were being addressed. A report was then written that documented program successes and recommended changes for future programs.

Conducting a Formative Evaluation

- Formative evaluation uses interviews with each group of stakeholders and classroom observations to learn how the program is progressing.

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- The results, conclusions, and recommendations will be submitted to program planners in a written report while the program can still make changes.
- In addition, an external evaluator can provide an unbiased, expert opinion of the program.

INTERVIEWING STAKEHOLDERS

- Interview representatives from each group of stakeholders (e.g., teachers, managers, learners, employee representatives, and supervisors).
- Ask questions about goals, resources, processes, and impact.
- Keep questions open-ended—do not give your own opinion and then seek agreement.
- If a brief response is given, ask for more examples or reasons; continue asking for examples until the interviewee runs out of responses.

Formative interviews should be conducted with representatives from each group of stakeholders including teachers, managers, learners, and others involved in planning and implementation. While it is not usually feasible to talk to all people involved, you should choose representatives who can discuss the program from each group's perspective. For example, you may want to talk to the program manager(s), since there may be only one or two people who hold this position. But rather than trying to reach all learners, you should choose a representative sample, possibly one or two people from each class.

Once you have selected participants to interview, you will formulate questions to ask interviewees. These questions will be based on goals, resources, processes, and impact, as discussed earlier. Typical questions might be, "What do you think are the most important goals of the program? What is your opinion of these goals?" (See Mikulecky & Lloyd, 1994b for more details on conducting a formative evaluation.) Such questions would be asked of all interviewees and their answers compared to look for potential disagreements. For example, if managers think the goal of the program is current job improvement, learners think it is getting a new job, and teachers think it is self-development, there may be some problems if the course is too brief to accomplish all these goals.

It is important not to ask leading questions, but to leave them open-ended to be answered honestly. Offering hints of the kinds of answers you are expecting would be too manipulative. It is acceptable to ask for an opinion of a list of items, but it would not be fair to suggest answers if an interviewee gives a brief response to the initial question. It is also unacceptable to state your own opinion as part of the question. For example, asking someone, "Well, aren't the materials good?" is not acceptable. If someone does give a brief initial response, an appropriate prompt would be to ask for more examples or to ask his opinion

of specific items, without hinting. As an interviewer, it is essential to remain as neutral as possible to avoid influencing the outcome of the evaluation.

EXAMPLE: In the automotive plant mentioned earlier, the program manager, two teachers, and four students (i.e., two from each of two class sessions) were asked whether there were sufficient resources to run the program effectively. Specifically, they were asked about class time, building facilities, and classroom materials. Part of a typical interview with one learner follows:

Interviewer: "What do you think of the books and other materials used in this class?"

Learner: "OK, I guess."

Interviewer: "Can you tell me more?"

Learner: "Some of them are old and I'm not sure if they are out of date or not."

Interviewer: "So you're not sure if you're getting the most up-to-date information?"

Learner: "Yes."

Interviewer: "Is there anything else?"

Learner: "Well, sometimes we have to share workbooks. We can't take them home because there aren't enough for everyone to have a copy."

Interviewer: "So you think it would be helpful to have your own copies of books?"

Learner: "Yes, I could then take notes in my own book."

OBSERVING CLASSROOM ACTIVITIES

- Observe some classes—note the time of each activity and describe events as thoroughly as possible.
- Compare observations with interviews and program goals to determine matches and mismatches between what is actually occurring and stated goals.

Besides interviewing stakeholders, you will also want to observe one or more typical class sessions. As you observe, take notes and describe activities as thoroughly as possible. Be sure to record the time of each activity for later reference.

The results of these observations will be compared with published program goals and interview responses of stakeholders. For example, observations

might reveal a difference between what teachers say about the way they spend time in the classroom as compared with what they actually do. More typically, instruction might address some goals while missing others. Reasons for this can be too many goals for a brief course, lack of communication with the teacher about priorities, or lack of resources (e.g., planning time, materials) to accomplish goals.

Analyzing Interviews and Observations

To analyze the information gathered, look for

- areas of agreement and disagreement among stakeholders,
- potential mismatches between goals and resources, and
- inconsistencies between goals and instruction.

Once you have completed interviews and observations, you will analyze the results. Look for areas of agreement and disagreement among the various stakeholders, taking into account the classroom activities you observed. Look also for discrepancies between program goals and either resources to accomplish them or instructional methods. If problems exist, they are usually readily apparent. For example, the manager may believe the program is assisting employees with job-related skills, when in fact, teachers are using only off-the-shelf materials because they have not been given the time necessary to conduct a task analysis before the first class was scheduled to begin.

EXAMPLE: In the automotive plant mentioned previously, a question was asked of managers, teachers, and learners regarding the availability of resources. The manager thought that resources were more than adequate, but teachers wanted easier access to off-the-shelf materials for the GED preparation strand. It was sometimes taking several weeks to process purchase orders and have workbooks delivered, causing delays for learners who wanted to prepare for the upcoming test. Classroom observations confirmed that these learners were being forced to share one workbook among several participants, and they could not take materials home for additional practice. The evaluator discerned that procurement of materials was indeed a problem about which managers were unaware, and that materials would have to be made available more quickly so that learners would be adequately prepared for the GED test. Such a finding in the evaluation provided the political leverage teachers needed to expedite their requests.

In this example, interviews and observations revealed differing perceptions among the various stakeholders.

Reporting the Results of Formative Evaluation

- Prepare a detailed progress report, highlighting strengths and limitations, and making recommendations.
- Have the report reviewed and then distribute it to the planning group in advance.
- Meet with the planning group to present the report—be prepared to answer questions and discuss implementing recommendations.

After analyzing the information gathered during interviews, you will want to report your findings and recommendations to your planning group. Prepare a clear and detailed progress report, highlighting strengths and limitations of the program. The findings should be discussed relative to program goals and the progress made so far toward reaching them. Include a section containing conclusions and recommendations to ensure that the program stays on track. You might also want to include a small appendix containing samples of work completed by learners. As you describe the findings in the report, be certain not to refer to specific individuals. It is important to gain the trust of stakeholders by maintaining confidentiality.

Once the report is written, have another committee member or teacher review it for errors, misunderstandings, or other problems. Distribute the report to the planning group and schedule a meeting to discuss it. By distributing the report in advance, you will avoid problems such as revealing potentially negative information for the first time in front of the entire group. At the meeting, organize a brief presentation of the results, conclusions, and recommendations. Be prepared to answer questions and discuss how to implement recommended changes.

EXAMPLE: In a literacy program at a large insurance company, the formative report was written by the program manager and reviewed by another instructor. It was distributed to the company's training committee, and a meeting was called to discuss it. The evaluator gave a brief presentation of the results, highlighting the program's strengths and problems. Strengths included starting the first class on schedule and maintaining a high enrollment due to advance publicity. One problem was instructors' difficulty in obtaining materials and supplies in a timely manner. Once the purchasing manager was made aware of this problem, she arranged with the purchasing department to speed up processing of purchase orders for the program.

Working With an External Evaluator

Besides conducting an internal evaluation, it is advisable to seek the professional advice of an outside evaluator. This expert can provide participants

with an independent, unbiased look at the program and recommend changes that will assist the program in achieving its stated goals. In addition, he or she can monitor the internal evaluation or provide confirmation of results.

Conducting a formative evaluation will enable the program to remain focused on its goals. By interviewing a representative sample of stakeholders, discrepancies among the opinions of each group can be uncovered and resolved promptly.

Conducting a Summative Evaluation

- Summative evaluation documents the program's success in achieving its goals.
- Goals may include attaining gains in literacy ability, improving job productivity and attitudes, expanding learners' educational goals, and increasing involvement in literacy activities at home.
- Pre- and post-test results and other information gathered as part of summative evaluation will be used to write the Summative Evaluation Report.

Examining Achievement of Program Goals

The planning group should

- review and analyze program goals;
- examine program records, such as enrollment and retention rates, samples of custom-designed instructional materials, and samples of learners' work; and
- discuss how well goals were achieved.

To determine how well the program achieved its stated goals, each goal should be reviewed and analyzed by the program planning group. Items such as relevant pre- and post-test results, meeting minutes, class materials, samples of classroom work, and other relevant materials should be gathered as evidence that goals were achieved. Informal evidence such as quotes from supervisors and written comments by course participants can also be included.

EXAMPLE: In a food manufacturing plant, the planning committee's goals were reviewed by the group as part of summative evaluation. Minutes were taken at the meeting, and these were developed into a section in the final report that assessed goal achievement, going through the list of stated goals item by item. For example, one goal was to interview each worker individually to discuss his or her educational needs. Throughout the program, records were kept of interviews, and a table showing demographic data about the group of interviewees was included in the report to demonstrate that this goal was achieved satisfactorily.

USING ASSESSMENTS AS PRE- AND POST-MEASURES

- Develop learner assessments as curriculum is being designed.
- The assessments should be linked to the learning objectives of the class and be relevant to both teaching and jobs.
- To allow results to be compared directly for evaluation purposes, administer the same assessments before and after a course.
- If a standardized test is used, it should be one that uses realistic tasks relevant to the job and life skills included in instruction.

As curriculum is being designed, you should also develop assessments to use as pre-measures of learner ability prior to instruction, and as post-measures to determine the extent of gains as a result of instruction. The assessments should reflect as closely as possible the objectives of the curriculum being taught, and be relevant to both teaching and jobs. (See Mikulecky & Lloyd, 1994a for examples of possible measures.) So that results can be directly compared later, you will administer the same assessment for both the pre- and post-tests. Feedback on answers should not be given to learners, or the use of the same measures as a post-test will be invalidated. When administering assessments, it is important to explain to learners that these are being used to measure the program's achievements and not as an evaluation of learners for the purpose of grading them. After course completion, the assessments can be scored and the results recorded for later analysis.

EXAMPLE: A course was developed that taught percentages as they related to efficiency reports for production, in the food manufacturing plant described above. Objectives included learning to read tables and to perform various calculations involving percentages and machine efficiencies. Using actual job materials, an assessment was developed that measured these skills. It was administered before and after instruction so that results could be compared and analyzed to assess the extent of gains in learner ability. Average scores for the whole class were compared and gains were noted in each of the skills addressed by the instruction.

Standardized tests such as the Test of Applied Literacy Skills (TALS) and the CASAS Life Skills Assessment can sometimes be used as part of summative evaluation. Those measures are most effective when curriculum matches the types of life skills materials and tasks used on these measures. Sometimes only a single subtest is needed (e.g., document or quantitative). As with the custom-designed measures discussed above, standardized tests should be administered as pre- and post-assessments so that results can be compared directly. The TALS and CASAS are sometimes appropriate for workplace education because each uses realistic tasks (e.g., adding up a bank deposit slip, reading a table). In addition, these assessments do not assign a grade level to each learner as is done with more general skills tests, such as the Test of Adult Basic Education

(TABE). (See Chapter One for a more detailed discussion of TALS and CASAS.)

EXAMPLE: In an auto manufacturing plant, the TALS was administered to all workers prior to the start of a class and again after each person had completed 20 hours of instruction. The average scores on each of the three sections (i.e., prose, document, and quantitative) were analyzed to look for gains in learner ability. The curriculum addressed a wide range of functional literacy tasks from home and the workplace. Some improvement in scores for the whole group demonstrated that literacy skills in these three areas had increased.

USING COMPANY RECORDS

- Company records are a good method of assessing the program's impact on productivity.
- Use records that will allow you to gather information on individual employees (e.g., customer complaints, attendance, enrollment in later courses).
- Collect data for a time period before a class and after at least 20–30 hours of instruction. If possible, compare learners with a control group who did not participate in the class.
- If these records show an improvement in the bottom line, they can be used to justify continued financial support.

To assess the impact of the program on productivity, examine company records (e.g., attendance, safety, applying for promotions, use of suggestion boxes, error or scrap rates, customer complaints, quality assurance group participation). Although the results will be analyzed for the group of learners, you will need to gather information on the individuals in class to get an accurate representation of any gains in productivity. The items you choose will depend on what is available in the company and how records are organized. For example, in jobs that involve customer service, records might be kept of customer complaints against each employee. Perhaps records are kept of the time required to complete paperwork, for jobs that require filling out many forms. Attendance records are another source of productivity that may show improvement as a result of attending classes.

It may be difficult to find records that are organized by individuals, but keep searching. If you are trying to obtain continued funding, company records can be an excellent indicator of the program's success at improving productivity. Programs that can demonstrate an improvement in the company's bottom line are more likely to receive continued support.

To get around the problem of requiring individual records for each learner, it might be possible to teach all the members of a particular department or team at one time. Team or department records could then be examined. For example, if team training is the major new factor between pre- and post-class records, the

group's gains in productivity can be attributed to the instruction they all received.

As with other measures, you should collect data on program participants for a time period before the program and after a significant amount of instructional time (e.g., at least 20–30 hours). This data can be analyzed for the group of learners to look for improvements in productivity. It may also be useful to compare people who attended class with a control group of the same size who did not, due to scheduling problems or limits on enrollment, as a way to discover whether participation in the class improved the productivity of learners when compared to the general worker population.

EXAMPLE: In a program for correctional officers at a women's prison, attendance records were examined for those in a report writing class and for a control group. Periods of two months before and after the class were selected to allow a significant number of absences to accumulate. Because the pre-class period of attendance was in the fall and the post-class period was in winter, attendance fell for both groups. However, the attendance of the control group fell significantly more than that of the group in class. Thus, the use of the control group could demonstrate the positive impact of the report writing class on attendance, whereas without it the impact would have appeared to be negative.

DEVELOPING SUPERVISOR RATINGS

- Supervisor or team leader ratings of employees' job performance are a series of anchored rating scales that are custom-designed to suit your company.
- The supervisors or team leaders who will be making the ratings can assist you in developing the rating scales of job performance (e.g., completing paperwork, working in teams).
- Anchored rating scales help to ensure that pre- and post-ratings are made consistently to allow valid comparisons.

An additional measure of job productivity is the development and implementation of job performance ratings of employees attending the program. These ratings are a series of anchored rating scales that are custom-designed to suit your particular workplace. As is the case with company records, the ratings will be used before and after instruction to measure the program's impact on job productivity. Supervisors and possibly key employees will assist you in developing ratings on various aspects of job performance, including both specific, job-related behaviors and communication indicators related to literacy and basic skills. For example, job-related behaviors might include reading measurements and setting up equipment, following safety rules or completing paperwork. Communication indicators might include behaviors such as how well employees communicate as members of a team, and how often they offer suggestions at team meetings.

It is important to involve the supervisors who will be doing the rating in the development of the scales. If supervisors feel they have contributed to the rating scales, it is more likely that they will take the rating process seriously, so that you can obtain valid evidence that instruction has made a difference to job-related behaviors.

Another factor to consider as you design rating scales is how many supervisors from different departments will be using the scales to rate employees. When the ratings are scored and the results analyzed, they will be reported for the entire group in instruction. The larger the number of employees rated, the more accurate will be the analysis. Thus, it is not efficient to design separate rating scales for small departments or teams. Rather, the ratings should cover a broad range of behaviors that encompass several jobs. For example, you might develop a rating scale for the specific communication skills used by self-directed work teams and then examine how these skills affected company production.

DESIGNING THE RATINGS IS A FOUR-STEP PROCESS.

Step One: Ask supervisors or team leaders to describe in detail how workers use information on the job. Encourage them to think of specific individuals. For example, they might say that a worker

- uses quality monitoring information,
- completes paperwork accurately,
- has information and suggestions to contribute at team meetings, and
- sets up equipment accurately and checks settings.

From this list, you will identify areas that can be developed into ratings.

Step Two: For each of the identified areas, ask supervisors or team leaders to think of behaviors that characterize top, bottom, and average employees:

- first, describe the behavior of top performers;
- then, describe the behavior of bottom performers; and
- last, describe average performers.

You will then use these behaviors as descriptions for the anchored ratings. The scale will range from 1 to 10, with 10 being the highest possible rating. The description of top performers would fall at about 8 or higher on the scale; the average description would fall at about 5, and the bottom description would rank at about 2 on the scale. For example, in relation to paperwork, supervisors might agree on the following descriptions:

Top: completes all job-related paperwork accurately (rating 8);

Bottom: intimidated by job-related paperwork, and avoids it or does it poorly (rating 2);

Average: does job-related paperwork with some mistakes (rating 5).

Step Three: Once the descriptions are completed, work with supervisors to develop initial categories and labels for the rating scales. For example,

categories might include paperwork, problem solving, safety, responsibility, communication, and so forth.

Step Four: Draft a rating scale and submit it to supervisors for comments and revisions. Sometimes during revision, complex categories may split to become two separate scales. An example of two categories from supervisor ratings appears below.

EXAMPLE:

Employee Assessment–Overall Rating

Please rate each employee on a scale of 1–10 for each aspect below.

- An average employee would be rated 5.
- A top employee would be rated 8 or higher.
- A bottom employee would be rated 2 or lower.

EMPLOYEE _____ DATE _____

RATER _____

PROBLEM SOLVING

Bottom	Average	Top
calls supervisor on minor details or continues to work when equipment is faulty	makes minor adjustments, offers solutions to problems and calls supervisor only when necessary	can analyze job situations, make suggestions and solutions which implement change

1 2 3 4 5 6 7 8 9 10

MACHINE SETTING

Bottom	Average	Top
unable to set machines correctly	usually sets machines correctly, but doesn't always check settings	sets machines correctly and checks settings thoroughly

1 2 3 4 5 6 7 8 9 10

ANALYZING DATA

- The results of all pre- and post-assessments should be analyzed to look for learner gains.
- Compare average scores for the group of learners both for each item in the assessments and for the total scores in sections of similar items.

The results of all pre- and post-assessments (classroom assessments, company records, supervisor/team leader ratings, etc.) should be analyzed to determine the extent of learner gains. After all tests are scored and the scores recorded, compute the average score for the group of learners. Compare the average scores for each item in the assessments and also compare the total scores in sections of similar items. If your aim in conducting a summative evaluation is to obtain continued funding, you may decide to compare scores using a statistical test of significance. If this is so, you may need to consult a statistics textbook, the manual for a software package, or an expert in statistical analysis. The average scores (or the statistical analysis) will be used to describe the extent of learner gains in the Summative Evaluation Report.

EXAMPLE: In a program for bank tellers, a two-week intensive class in using tables (e.g., tables of compound interest rates) was developed and implemented. The same assessment was administered before and immediately after the course. The average scores were compared and an improvement was shown in the ability to use tables to look up interest rates. This gain in ability for the group was discussed in the summative report.

WRITING THE SUMMATIVE EVALUATION REPORT

The Summative Evaluation Report will discuss

- attainment of program goals,
- measures of learner achievement (i.e., pre- and post-assessments), and
- increases in job productivity (i.e., company records and employee ratings).

The report should

- explain the goals and learner achievements assessed;
- describe the methods of assessment;
- explain the results, highlighting the extent of learner gains; and
- draw conclusions about the success of the program and recommend changes for the future.

The purpose of the Summative Evaluation Report is to show what the program has achieved. This includes attainment of program goals, learner gains in literacy ability, and increases in job productivity.

In the area of attainment of program goals, briefly explain each goal and its intent. Describe how the goal was attained, using tables as supporting evidence. If the goal was not achieved to the desired level, explain why. For example, in a program in which employee participation is voluntary, there may be a stated goal that all employees would be interviewed to determine their interests in education. A table indicating how many employees were interviewed, grouped by department, would be an efficient means of describing how effectively this goal was achieved.

EXAMPLE: In the food manufacturing plant described earlier, a goal of interviewing all hourly workers to determine their interests was agreed upon by the union and management. The goal was achieved with the exception of a few employees (9 out of 130), including a few who refused to be interviewed and several who left the company before interviews could be scheduled. As supporting evidence, a table was developed showing how many employees from each department were interviewed including a breakdown of their interests in education. To avoid revealing the identity of any individuals, employees who refused to be interviewed were not mentioned directly.

Second, measures of learner achievement should be explained and the results presented. For assessments that were developed for specific courses, briefly describe the course, its objectives, and the corresponding assessments. Give one or two examples of questions that were asked. Explain the results for the group of learners, highlighting any gains in ability. Again, use tables to present results for the group of learners.

EXAMPLE: In the food manufacturing plant, a brief course on reading piping diagrams was developed and implemented. Scores on the pre- and post-assessments showed an improvement in the ability to understand these diagrams and use them on the job. The r

report stated:

A two-part short course on reading piping diagrams was given for all employees at each shift meeting. The goal of the course was to enhance their understanding of piping diagrams which they were required to read on the job. A brief exercise was given before and after each class session to determine how much was learned. The exercise consisted of a series of piping diagrams. Employees were asked to mark the diagram to indicate that they understood how to read it. When the scores were compared, employees from all three shifts showed an average increase of 12–14% in the ability to read the diagrams.

Next, discuss the program's impact on job productivity. Explain the types of records that were examined and the types of job behaviors that were rated by supervisors. For example, perhaps data on customer complaints about individual employees was collected. Explain why this type of record was chosen and present the results for the group of learners. Finally, give your conclusions about the success of the program including recommendations for the future.

Prepare a draft of the report for the planning committee, and make any revisions as necessary. You may also be asked to prepare a presentation of the report, as you did for the formative report. Be prepared to discuss the findings and your conclusions and answer questions for the group.

CHAPTER SUMMARY

Evaluation should measure the success of the program and whether the needs of the various stakeholders are being met. A plan for evaluating the program including assessment instruments should be developed as the curriculum is designed. There are two types of evaluation, formative and summative. Formative evaluation checks the progress of the program while it is still under way, so that changes can be made. Summative evaluation assesses the total effectiveness of the program, including how successful it is in meeting stated goals, in assisting learners through instruction, and in improving job productivity. It uses assessments as pre- and post-measures of achievement. Summative evaluation also looks at company records (e.g., attendance, customer complaints) to assess the impact on job productivity.

To conduct a formative evaluation, representatives from each group of stakeholders are interviewed to determine the extent of agreement or disagreement in the four areas of goals, resources, processes and impact. In addition, several classes are observed and observations are compared to interview results. A draft report is written and submitted to one or two individuals for review before being distributed to all stakeholders. Discussion of the results and conclusions should help the planning committee to make appropriate changes to keep the program on track.

Summative evaluation is carried out by examining program goals, measuring learner achievement through custom-designed assessments and standardized tests, and looking at productivity indicators (e.g., supervisor ratings and company records). Each of these measures is scored and the average scores for the group of learners is calculated. The results are then compiled in the Summative Evaluation Report. The report discusses achievement of program goals, learner achievement, and job productivity. The report draws conclusions about the overall success of the program and recommends changes for the future.

IMPLICATIONS AND CONCLUSIONS

In an increasingly global economy, the demands on workplaces to serve customers and compete on a world level are growing all the time. As businesses face these challenges, literacy demands also continue to expand. If workplace literacy programs are to be effective in meeting these demands, they must serve the literacy needs of both employees and businesses.

Two factors that are key to a program's success are obtaining the buy-in of stakeholders and developing multiple strands. To establish a successful

workplace literacy program, it is essential to obtain the buy-in of all stakeholders. Goals must be understood and agreed upon by management, union, instructors, learners, and anyone else who will be involved with the program.

Besides obtaining the buy-in of stakeholders, the program should work towards providing multiple strands of instruction that will address both learners' needs and the demands of jobs. Some strands can be custom-designed to solve job-related skill problems. Additional strands can then be developed that provide for the long-term needs of learners. Workers could enroll in a program strand that addresses low-level skills, then advance to a job-related skills course or possibly a GED preparation course, and finally, enroll in technical courses at a local community college. Thus, an effective program can be developed that will have an impact on the organization's bottom line and also assist learners with personal goals such as obtaining the GED certificate or advancing to higher paying jobs.

Some program strands will use off-the-shelf materials, but others will be custom-designed to address learner needs and job-related skills. The materials you custom-design will be based on a literacy task analysis of key job areas, so that instruction will relate directly to performance difficulties. Literacy task analysis involves interviewing and observing workers in the selected jobs, breaking down jobs into tasks and subtasks, and analyzing the literacy-related skills involved. The literacy task analysis along with the materials workers use on the job will become the basis for teaching these literacy-related job skills. In addition to custom-designing parts of the curriculum, you will use some off-the-shelf materials and some instruction that considers learners' interests (e.g., completing insurance claim forms, reading to children, or job advancement). An effective workplace literacy curriculum links together current basic skill levels, job requirements, and learner interests.

A key element of program planning is evaluation. Formative evaluation can provide valuable information about how things are going and point out areas of concern that can be addressed while the program is still in progress. Summative evaluation can establish accountability for the program, providing evidence for continued funding if necessary. This type of evaluation examines the achievement of program goals. It is based on assessments relevant to the curriculum that measure learner gains, and includes the achievement of instructional objectives and increased job productivity.

The issue of workplace literacy presents many complex challenges and problems. You need to be able to operate flexibly with a variety of stakeholders, some of whom may not clearly understand just what a workplace literacy program can and cannot do. This handbook offers solutions to these concerns and provides practical suggestions for establishing a program that is both achievable and likely to produce positive results. You will hopefully find it useful as a general guide to building a successful program. Take up the challenge and enjoy your successes.

FURTHER RESOURCES

Carnevale, A. P., Gainer, L. J., & Meltzer, A. S. (1988). *Workplace basics: The skills employers want.* Alexandria, VA: American Society for Training and Development.

This 35-page booklet describes the nature of workplace basic skill demands and outlines the process of establishing a custom-designed program. It is available from American Society for Training and Development, 1630 Duke Street, Box 1443, Alexandria, VA 22313.

Drew, R. A., & Mikulecky, L. J. (1988). *How to gather and develop job specific literacy materials for basic skills instruction.* Bloomington, IN: Office of Education and Training Resources, School of Education, Indiana University. (ERIC Document Reproduction Service No. ED 297 160)

This 70-page guide describes in detail how to conduct a task analysis, and includes examples of task interview forms and how to use workplace print materials in teaching. It is available from Vocational Education Services, 840 State Road 46 Bypass, Indiana University, Bloomington, IN 47405.

Henard, D., Lloyd, P., & Mikulecky, L. (1992). *A guidebook for developing workplace literacy programs.* Indianapolis, IN: Office of Workforce Development. (ERIC Document Reproduction Service No. ED 348 580)

This 120-page guide leads the reader through the full process of establishing a workplace program, from setting up a planning group to evaluating the results. It includes illustrative examples and anecdotes from the State of Indiana Model workplace program, and is available free from the Office of Workforce Development, Indiana Government Center, Indianapolis, IN 46204-2277.

Mikulecky, L., & Lloyd, P. (1993). *Evaluating the impact of workplace literacy programs* (Tech. Rep. No. TR93-02). Philadelphia: University of Pennsylvania, National Center on Adult Literacy. (ERIC Document Reproduction Service No. ED 348 579)

This 170 page book describes a new model for evaluating workplace programs and includes detailed examples of assessment measures, as well as the background to the development and implementation of the model. It is available, in either hard copy or electronically, from the National Center on Adult Literacy, University of Pennsylvania, 3910 Chestnut Street, Philadelphia, PA 19104-3111.

Mikulecky, L., & Lloyd, P. (1994a). *Handbook of ideas for evaluating workplace literacy programs.* Bloomington, IN: Indiana University School of Education. (ERIC Document Reproduction Service No. ED 375 264)

This 50-page handbook provides a menu of techniques for evaluating workplace literacy programs and includes detailed examples of assessment measures, how to develop and conduct them, and how to assess the results.

Mikulecky, L., & Lloyd, P. (1994b). *Indiana's evaluation model for adult basic education programs: A handbook.* Bloomington, IN: Indiana University School of Education. (ERIC Document Reproduction Service No. ED 375 265)

This 350-page handbook provides a series of workshops on formative and summative techniques of evaluation. It includes full details of the evaluation measures used in the Indiana model, how to conduct them, how to assess the results, and how to write formative and summative reports.

Mikulecky, L., et al. (1992). *Developing Workplace Literacy Programs.* (A set of five brochures.) Philadelphia: University of Pennsylvania, National Center on Adult Literacy. (ERIC Document Reproduction Service No. ED 348 578)

This series of five brochures outlines the key issues involved in setting up a workplace program: Gaining Management Support, Working with Management and Unions, Discussing Training Needs, Recruiting Students, and Planning Ahead.

Philippi, J. W. (1991). *Literacy at work: The workbook for program directors.* New York: Simon & Schuster.

This 300-page guide describes in detail how to set up a workplace program including task analysis and custom-designing. It is available, for $200, from Simon & Schuster (1-800-223-2336).

Taylor, M., & Lewe, G. (1990). *Literacy task analysis: A how-to manual for workplace trainers.* Ottawa, Ontario: Algonquin College, Adult Basic Education Department. (ERIC Document Reproduction Service No. ED 337 580)

This 170-page manual describes in great detail how to carry out a task analysis, with samples of forms to use, plus advice on developing training from the analysis. It is available from Glenda Lewe, Suite 2301, 530 Laurier Avenue West, Ottawa, Ontario, K1R 7T1.

Taylor, M. C., Lewe, G. R., & Draper, J. A. (Eds.) (1991). *Basic skills for the workplace.* Toronto, Ontario: Culture Concepts, Inc.

This 500-page book contains chapters on the demand for workplace programs, on how to assess worker needs, conduct a task analysis and design curriculum, on example case studies, and on teaching methods and evaluation. It is available from Culture Concepts, Inc, 5 Darlingbrook Crescent, Toronto, Ontario, M9A 3H4.

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APPENDIX

This appendix contains a set of overheads that provide a broad outline summary of each chapter. These are intended to serve as teaching aids so that the guide can be presented as a series of workshops for staff development. This could be done chapter by chapter or section by section, depending on the time available and the needs of program staff.

Current Practices in Workplace Literacy Programs

What we know about workplace literacy programs:

- There are several different workplace literacy problems which call for different sorts of solutions.
- Improvement takes a significant amount of learner practice time.
- Transfer of learning to new applications is severely limited.
- Significant learning loss occurs within a few weeks if skills are not practiced.

Labor Market Trends

- A shift in employment from relatively low-skilled jobs in manufacturing to higher-skilled jobs in the service sector.
- A trend toward more efficient "high-performance" workplaces.
- An increase in the use of literacy in workplaces.
- An increase in temporary and part-time work.
- A shortfall in the level of skills workers bring to the job.
- An increase in the number of workers with little ability to speak and understand English.

Labor Market Trends (continued)

The Shift from Manufacturing to the Service Sector

- Since 1965, the United States has experienced a shift in employment from manufacturing to service sector jobs:

	1965	1993
manufacturing	29.7%	16.3%
service sector	63.9%	79.0%

- In the past, it was possible to earn more in manufacturing jobs that demanded less skill.
- Many workers find that they must now have higher literacy skills to get jobs that pay less.
- This can have serious motivational consequences for those workers, which must be addressed by workplace educators.

Labor Market Trends (continued)

The Growth in High-Performance Workplaces

- Increasing numbers of businesses are adopting high-performance techniques, such as quality assurance teams and greater use of technology.
- High performance workplaces have greater demand for higher-skilled workers.
- Fewer jobs are available but with more responsibility.
- Education should focus on skills that will help workers cope with additional responsibilities.

Labor Market Trends (continued)

Increased Use of Literacy in the Workplace

- Workplaces use a combination of
  - prose literacy,
  - document literacy, and
  - quantitative literacy.
- Different skills are often used together.
- Instruction should use realistic simulations to provide a link to the way skills are used on the job.

Labor Market Trends (continued)

Increase in Temporary and Part-time Work

- Due to the ever-increasing costs of long-term employment commitments (e.g., benefits), employers are less likely to invest in permanent, full-time employees.
- Individual workers will have more major job changes over their lifetimes.
- Temporary workers face higher and more varied literacy requirements as they move from job to job.
- They will require education in flexible skills, such as using resources to solve problems and answer questions on the job.

Worker Populations

Low Levels of Worker Skills

- The National Adult Literacy Survey (NALS) shows that one half to three fourths of workers in certain job categories perform at the lower two levels of the survey.

  Categories include:

  - transportation
  - service
  - farming
  - laborer

- Job literacy requirements are increasingly at Level 3 or above.
- Workplace instruction should focus on these more demanding job tasks and build in practice of the necessary skills.
- Opportunities should be provided for long-term education for learners at the lowest levels if improvement is expected.

Worker Populations (continued)

Workers With Little English

- Workers with little English are
  - over-represented in lower skilled jobs;
  - less likely to be provided with education from employers; and
  - unemployed more often and have greater needs for education due to turnover.
- Such workers do not all have the same need for instruction in reading and writing, listening and speaking.
- Workers from other cultures may need help in making the shift to American workplace behaviors, attitudes, and expectations.
- Workers with little English are likely to learn more quickly if they are taught in the context of the job and outside interests.

Characteristics of Effective Programs

Multi-Strand Programs

- Multi-strand programs should provide for diverse populations on a long-term basis.
- They should also address the needs of low-level learners by providing a sequence of learning experiences from basic to more advanced instruction.
- A multi-strand program can expand from small beginnings to meet the needs of all workers.

Characteristics of Effective Programs (continued)

Involvement of Major Stakeholders

- The active involvement of major stakeholders is important to the success of the program.
- These stakeholders include
  - management,
  - employee organizations,
  - instructors, and
  - learners.
- A good way to achieve this involvement is to form an advisory committee made up of representatives from the key groups in the workplace.
- Involvement in the planning stages increases the likelihood that stakeholders will buy in to the program.

Characteristics of Effective Programs (continued)

Custom-Designed Curriculum

Custom-designed curriculum:

- takes learner interests into account;
- is based on analysis of job tasks and skills; and
- uses materials from workers' jobs.

Characteristics of Effective Workplace Literacy Programs

- Multi-strand programs are an effective way to meet the demands of the diverse populations within a workplace.
- Custom-designed materials integrate basic skills instruction with workplace instruction.
- Forming an advisory committee involves major stakeholders in the planning process.
- Planning for long-term educational goals allows workers—and the program—to grow.

Needs Analysis

- "Where is the pain?"—

  what problems are causing real concern for the employees and company.
- Gather information through interviews and surveys, and by observing daily operations in the workplace.
- Determine which areas of company performance need improvement and find out the differences between where the company and the workers are and where they want or need to be.
- Define which problems are most pressing and determine whether they can be solved through education.

Designing a Workplace Literacy Program

- Address the needs of both the employees and the company.
- Create a balance of workplace demands and learner interests.
- Offer multi-strand programs to meet the needs of various workplace groups.
- Involve workers in developing and recruiting for your program.

Addressing the Needs of Various Groups

- Multiple program strands are needed to address multiple problems.
- Improvement takes significant learner practice time, and varies greatly depending on the learners and the material.
- For example, learners can be
  - high school graduates,
  - high school non-graduates,
  - part-time employees,
  - low-level literates, or
  - English as a second language (ESL) students.

Making Use of Non-Training Solutions

- Non-training solutions include:
  - providing job aids,
  - redesigning forms, and
  - rewriting instructions.
- But be careful—employers will not always be open to these types of changes.
- Non-training solutions help increase the effectiveness of your program and help employees perform their jobs better.
- Consider the cost of developing and providing non-training solutions and the alternatives that are available.

Resources and Logistics

- Funding sources include state and federal grants, partnerships with libraries and colleges, workplace unions and management.
- Program teachers are a crucial element and may need help with using job-related curriculum and becoming sensitive to the workplace culture. Above all, they must be flexible.
- Look for ways to share resources with unions, companies, and training departments.
- Discuss the scheduling of classes around the company's activities to achieve maximum cooperation.

Resources and Logistics (continued)

Finding Funding Sources

These include:

- state level grants
- federal literacy grants
- unions
- partnerships with local libraries, colleges, and volunteer organizations

Be aware that...

- outside funds may need 100% employer match,
- federal funding is usually seed money to start programs, and
- there may be a delay in obtaining funds.

Resources and Logistics (continued)

Staff Development

- Program teachers are vitally important—a program depends on how teachers interact with learners.
- Teachers may need help with using job-related curriculum, particularly if they come from ABE or school backgrounds.
- Teachers need to learn as well as teach—sharing responsibility with workers who are content experts on their jobs.
- Teachers need to be sensitive to the workplace culture and adapt instruction to workers' immediate needs.

Above all, teachers must be flexible.

Resources and Logistics (continued)

Allocating Your Resources

Resources include:

- facilities
- funds
- supplies
- storage space
- services such as advertising
- relationships with officials

Some tips to maximize resources:

- Establish relationships with other departments and unions to share resources
- Use loaned resources
- Plan the logistics of your program early—schedule and location of classes, storage space, location of office
- Ask learners to help advertise the program

Resources and Logistics (continued)

Planning Program Schedules

- Class times must be as convenient as possible for everyone without interfering with business.
- Schedule classes before and after shifts.
- Develop take-home lessons for learners.
- Use computer-guided instruction.
- Start courses when the company has a slower production schedule.

Be flexible—work with supervisors, managers, and employees to find out what is most convenient.

Gaining Management and Employee Support

- Balance education and productivity needs.
- Involve management and employees in program development.
- Decide together what needs can be addressed first with the time, money, and resources available.
- Develop a shared vision for the future.

Maintaining Relations with Employees, Management, and Unions

- Successful outcomes and satisfied clients are achieved by reaching jointly agreed upon and reasonable goals.
- Constantly review the program's progress with supervisors, managers, and unions.
- Keep the lines of communication open, if possible through an in-house liaison person.
- Keep accurate records for your program on finance, and learner attendance and progress.

Suggestions for Maintaining a Successful Program

- Create a positive, actively involved relationship with employees, management, and union officials.
- Understand the need for flexibility:
  - anticipate and plan for problems, and
  - find creative solutions.
- Meet regularly with joint advisory teams to make sure clients are satisfied with the directions and outcomes of the program.

Conducting a Task Analysis

To address the needs of the company and employees:

- analyze jobs to determine the particular tasks they require;
- locate job or task areas that need improvement; and
- determine if literacy-related job skills need to be improved.

Analyzing Performance Problems

- Find out:
  - which tasks are critical to the job?
  - what skills need to be enhanced?
  - are there skills associated with promotion?
  - do jobs require retraining?
- Gather information through
  - interviews with employees, supervisors, and managers;
  - observation of workers on the job; and
  - examination of printed materials used by workers.
- Organize your information into a chart.

Example from a Job Task Analysis

Tasks	Subtasks
3. Determine what the customer needs	3.1 Ask the customer questions about what he needs.
	3.2 Determine if he needs information or help with solving a problem.
	3.3 If information is needed, go to the source of information such as the computer files or bank brochures.
	3.4 Gather the information needed.

After determining which job areas have performance problems:

- decide which tasks are most critical and pressing,
- find out what the specific problems are, and
- decide if these problems are caused by a need for improved literacy skills.

- A method used to analyze the aspects of job tasks that require reading, writing, computation, and problem solving.
- To help determine what types of literacy skills are needed to perform a job.

Example from a Job Task Analysis (continued)

Example:

Subtask	Literacy-Related Skills
3.4 Gather the information needed.	3.4.1 Analyze verbal and written information.
	3.4.2 Summarize information.
	3.4.3 Take notes.

Building Curriculum from the Literacy Task Analysis

- Select tasks that cause most difficulty and build curriculum around those tasks.
- Collect samples of print materials used by workers and develop curriculum activities from them.

Example:

Literacy Skills Applied

Summarize information and take notes.

Possible Lesson(s)

To simulate the work environment, use role play situations.

Tellers can practice summarizing information and taking notes using the bank's manuals, brochures, and computer system.

Selecting Off-the-Shelf Materials

- Supplement your customized curriculum with suitable commercial materials.
- Choose materials based on their compatibility with
  - your literacy task analysis,
  - your custom-designed curriculum, and
  - the needs of the workforce.
- Supplementary materials include
  - adult educational materials,
  - vocational texts, and
  - industry publications.

Developing Job Aids

- Job aids restructure information to make it more easily understood, so that job performance can improve.
- They simplify job tasks to provide ongoing support after instruction is finished.
- Learners can help develop job aids as part of practicing new skills.
- Job aids include
  - flow charts,
  - checklists, and
  - lists of instructions.

Developing a Recruitment Plan

Strategies for building an effective recruitment plan include

- providing incentives for learners,
- asking supervisors and your advisory committee for help,
- maintaining visibility within the company, and
- meeting learner interests and needs.

Communicate to workers through

- announcements in company newspaper,
- fliers in paychecks,
- talking with employees and supervisors,
- in-house videos that explain programs, and
- arranging for "plugs" from employee representatives.

Evaluation and the Link to Productivity

Types of Evaluation

Formative evaluation checks the progress of a program while it is still under way, so that changes can be made.

- It addresses four areas of concern to the program: goals, resources, instructional processes, and impact.
- Issues include the following:
  - do all stakeholders agree on program goals?
  - are resources sufficient to achieve goals?

Summative evaluation assesses the total effectiveness of the program.

- It examines the program from three main perspectives:
  - achievement of program goals,
  - learner gains, and
  - impact on company productivity.

Conducting a Formative Evaluation

- Formative evaluation uses interviews with each group of stakeholders and classroom observations to learn how the program is progressing.
- Results, conclusions, and recommendations will be submitted to program planners in a written report while the program can still make changes.
- In addition, an external evaluator can provide an unbiased, expert opinion of the program.

Conducting a Formative Evaluation (continued)

Interviewing Participants

- Interview representatives from each group of stakeholders: (e.g., teachers, managers, learners, employee representatives, supervisors).
- Ask questions about goals, resources, processes, and impact.
- Keep questions open-ended—do not give your own opinion and then seek agreement.
- If a brief response is given, ask for more examples or reasons.
- Continue asking for examples until the interviewee runs out of responses.

Conducting a Formative Evaluation (continued)

Observing Classroom Activities

- Observe some classes—note the time of each activity and describe events as thoroughly as possible.
- Compare observations with interviews and program goals to determine matches and mismatches between what is actually occurring and stated goals.

Analyzing Interviews and Observations

To analyze the information gathered, look for

- areas of agreement and disagreement among stakeholders,
- potential mismatches between goals and resources, and
- inconsistencies between goals and instruction.

Conducting a Formative Evaluation (continued)

Reporting the Results

- Prepare a detailed progress report, highlighting strengths and limitations, and making recommendations.
- Have the report reviewed and then distribute it to the planning group in advance.
- Meet with the planning group to present the report—be prepared to answer questions and discuss implementing recommendations.

Working With an External Evaluator

- An external evaluator can provide an independent, unbiased opinion of the program and recommend needed changes.

Conducting a Summative Evaluation

- Summative evaluation documents the program's success in achieving its goals.
- Goals may include
  - attaining gains in literacy ability,
  - improving job productivity and attitudes,
  - expanding learners' educational goals, and
  - increasing involvement in literacy activities at home.
- Pre- and post-test results and other information gathered as part of summative evaluation will be used to write the Summative Evaluation Report.

Conducting a Summative Evaluation (continued)

Examining Achievement of Program Goals

The planning group should

- review and analyze program goals;
- examine program records, such as enrollment and retention rates, samples of custom-designed instructional materials, and samples of learners' work; and
- discuss how well goals were achieved.

Conducting a Summative Evaluation (continued)

Using Assessments as Pre- and Post-Measures

- Develop learner assessments while curriculum is being designed.
- The assessments should be linked to the learning objectives of the class and be relevant to both teaching and jobs.
- To allow results to be compared directly for evaluation purposes, administer the same assessments before and after a course.
- If a standardized test is used, it should be one that uses realistic tasks relevant to the job and life skills included in instruction.

Conducting a Summative Evaluation (continued)

Developing Supervisor Ratings

- Supervisor or team leader ratings of employees' job performance are a series of anchored rating scales that are custom-designed to suit your company.
- The supervisors or team leaders who will be making the ratings can assist you in developing the rating scales of job performance (e.g., completing paperwork, working in teams).
- Anchored rating scales help to ensure that pre- and post-ratings are made consistently to allow valid comparisons.

Conducting a Summative Evaluation (continued)

Analyzing Data

- The results of all pre- and post-assessments should be analyzed to look for learner gains.
- Compare average scores for the group of learners both for each item in the assessments and also for the total scores in sections of similar items.

Conducting a Summative Evaluation (continued)

Writing the Summative Evaluation Report

The Summative Evaluation Report will discuss

- attainment of program goals,
- measures of learner achievement (i.e., pre- and post-assessments), and
- increases in job productivity (i.e., company records and employee ratings).

The report should

- explain the goals and learner achievements assessed;
- describe the methods of assessment;
- explain the results, highlighting the extent of learner gains; and
- draw conclusions about the success of the program and recommend changes for the future.